The Health Index of Children

ERNEST BRYANT HOAG

"In the schools of Hellas at least one aspect of school hygiene, namely, physical education, was recognized as a means of developing the ideal citizen—the true function of education."—Hogarth.

"A national school which trained the minds only and neglected the bodies of the pupils would have been inconceivable to a Hellene."—Freeman.

A SCHOOL PHYSICIAN AND NURSE AT WORK IN A PUBLIC SCHOOL.

THE HEALTH INDEX OF CHILDREN

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TO MY BROTHER

JUNIUS CLARKSON HOAG, M. D.

TO WHOSE SKILLFUL MINISTRATIONS MANY CHILDREN
OWE THEIR HEALTH AND HAPPINESS

PREFATORY NOTE.

More than two thousand years ago, Plato said that "Medicine is the science of health," and one of the most commonplace of our proverbs tells us that "Prevention is better than cure," yet today it is only with the greatest possible difficulty that the public can be convinced that the prevention of defects in school children is better than their cure. It will not be long however, before every school, which makes any claim to progressiveness, is provided with intelligent supervision of the health conditions of its pupils. In the larger places this work will be placed in charge of experts who have been practically trained. Many places, however, are too small to justify the expense of securing experts. In such situations the teacher must be relied upon for services of this character. Indeed even in the larger cities where a corps of trained experts have the work in hand much must be demanded of the teacher if the work be successful. It is therefore important that every teacher familiarize herself with the fundamental things which are now known about the health conditions of the child.

An intelligent teacher or parent even though he may not have had technical training, can easily learn to observe the ordinary signs and symptoms which indicate physical defects, for these relate to such points as posture, appearance of teeth, mental activity, colds, deafness, offensive breath, mouth breathing, inattention at home or in the school room, and delinquency in studies. The significance of these symptoms is obvious to the thoughtful individual even though he may never have had the advantage of special preparation.

The purpose of Dr. Hoag in this book is to give to teachers and parents a series of suggestions drawn from his own

broad and rich experience, which if carefully apprehended, will lead to intelligent action. Many persons interested in this movement have searched without success for a simple work of this character written in untechnical language. I believe the writer has been happy in making clear and helpful that which most observers have found confusing.

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INTRODUCTION.

The Health Index of Children.

A few years ago a child was considered in health so long as he did not show the *familiar* signs of disease. Even doctors often failed to read the plain language of many physical defects because they had not been trained to do so. In most places it is still not customary to regard a child as unhealthy because his upper teeth are prominent, uncovered by his lip, and perhaps crooked. Yet every teacher, parent, and physician ought to know that such a picture presents almost sure signs of *adenoids,* and that no child with adenoids can be truly healthy. Few school communities even now regard decayed teeth in a child as indicative of poor health, yet it is an incontrovertible fact established by the highest authorities that no child or even adult with seriously defective teeth can possibly possess good health.

We have always been accustomed to certain bad conditions which because of their frequency of occurrence have never been regarded seriously. Many such conditions in children have, therefore, always existed without exciting comment. They have usually been accepted as incidents of childhood, and their possessors as *types,* deserving no special attention. Now a

cross-eyed child is not a necessary type, nor is an earache a natural incident in any child's life. Both are positive signs of underlying serious causes, and are in themselves only secondary results which might usually have been rather easily avoided. Many signs of physical troubles among children may be read by anyone who will take the trouble to learn the language. To this sort of observation Mr. W. H. Allen has given the title, "Reading the Health Index[1]."

The most valuable asset that any child can possess is good health. This consideration of health as essentially valuable in life, is largely a new conception, and is characteristic of the trend of thought of the Twentieth Century. Without good health no individual can possibly live up to his highest ideals physically, morally, intellectually, or even commercially. He is handicapped in life's race. The health of the child very largely determines the success of the adult, and what we should be most concerned about in education is the laying up of vital assets for use in the active battle of life.

Individual and national vitality are the dominant notes today. "Poor seed yields poor fruitage." In the past this obvious fact has been largely ignored as far as it applies to the health of children, but today the most progressive schools in every country are seriously attempting to improve the seed from which nations grow, for good citizenship mostly depends upon the vitality of the seeds from which citizens spring. For this reason the development of a sound body is

[1]Civics and Health (Allen).

rapidly becoming the most important function of the School in the education of the child. You cannot properly educate a child who has not good health, so one writer has said, and another prominent school man has gone so far as to say that in the light of recent information relating to the health of school children, a community which neglects the systematic care of its school population is guilty of *criminal negligence.*

We must so educate children that they will possess good health and keep it in after life. "Education's highest aim is to train us to do the right thing at the right moment without having to think." The right thing in health will be done only when we are so educated that we do not have to think about it.

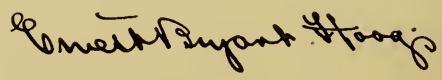
This book is an outgrowth of a series of lectures given to teachers in the Schools of Berkeley and Pasadena, to mother's clubs in the same cities, and to my classes in *School Hygiene* in the University of California. The material has, therefore, been pretty well tried out, before being placed in book form.

The object of this little manual is to show teachers and parents how to detect easily those ordinary physical defects of the child which bar his progress in school and life, and to suggest means by which such defects may be removed and good health afterwards maintained. Incidentally it may prove of some value to physicians who are for the first time applying themselves to this special sort of Public Health work.

While most of the material presented here has been drawn from my own rather extended experiences as Medical Officer in schools, I have made full use of

many well known works on Child Hygiene and related subjects. Reference is made to these in foot notes throughout the book.

To Professor Alexis F. Lange, of the department of education of the University of California, I am indebted for reading and criticising the proof sheets from the point of view of the University student's need: to Professor Kemp, of the San Diego Normal School for similar service from the standpoint of the Normal student's requirements. Several Superintendents, teachers and Medical Inspectors of California public schools have furnished valuable suggestions, for which I am specially grateful. The publishers of the author's "Health Studies," (D. C. Heath & Co.) have courteously given me permission to use certain extracts from that book.



Berkeley, California, October 1, 1910.

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PART I

THE HEALTH INDEX

DIAGNOSTIC TABLE

Signs of Disorders and their Indications.

(To be observed by teacher or parent.)

SYMPTOMS.	INDICATIONS.
Mouth breathing	Disorders of Nose, Throat and Ear. (Chapter I.)
Prominent upper teeth	
Loud breathing	
Nasal voice	
Catarrh	
Running nose	
Frequent colds	
Sore throat	
Offensive breath	
Cough	
Blank expression	
Slow mentality	
Deafness	
Poor physical development	
Earache	
Discharge	
Inattention	
Poor spelling	
Watching of lips	
Slow progress	
Headache	
Sore eyes of any kind	Eye Disorders and Defects. (Chapter II.)
Styes	
Congested eyes	
Crossed eye	
Squinting	
Headache	
Peculiar postures when reading	
Holding book too near face	
Poor reading or spelling	
Dizziness	

Decay of teeth Discoloration Crooked teeth Prominent teeth Offensive breath Poor articulation Broken teeth Mal-nutrition	Teeth Defects. (Chapter III.)
Pallor Flushed face Eruptions Scratching Sleepiness Lassitude Vomiting Headache Cough Running nose Congested eyes	Contagious Diseases (Chapter IV.)
Inability to hold objects well Spasmodic movements Twitching of eyes, face or any part of the body Irritability Fits Bad temper Fainting Nail biting Undue emotion of any sort Frequent requests to "go out" Timidity Stammering Cruelty Perverted tastes Moroseness Solitary habits Undue embarrassment Undue activity Misbehavior Sex perversions	Nervous Disorders. (Chapter V.)

Pallor Emaciation Enlarged glands in neck Puffiness of face or eyes Shortness of breath Lassitude Perverted tastes (e. g. foods) Slow mentality Peculiar or faulty postures Under development Excessive fat Vicious personal habits Low endurance power Irritability Disinclination to play Fatigue.	Nutritional and General Disturbances. (Chapter VI.)
Walking "pigeon toed" A shuffling, inelastic walk Toeing markedly out Advancing foot by exaggerated knee action Long axes of foot and leg meet at unusually wide angles Shifting from foot to foot Standing on outer edge of feet Locking knees Leaning against wall or desk Shoes run over at either side Front of heel worn down Outer and back part of heel worn down Wearing out of soles asymetrically Congestion of the feet Swelling, puffiness Excessive perspiration Callouses Twitching of the foot muscles	*Defects of the Feet (Chapter VII.)
Unequal height of shoulders Standing on sides of feet Prominent abdomen Flat chest Curved back Stooping	Incorrect Posture. (Chapter VIII.)

*The teacher should remember always that painful "weak feet" are not necessarily flat and conversely that flat pronated feet may not be painful.

No child will present all of the above symptoms.

CHAPTER I

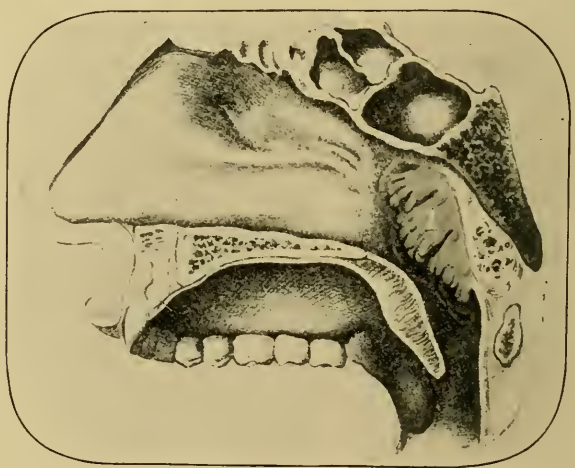
THE NOSE, THROAT AND EAR.

Among the common defects of children those of the nose, throat, and ear probably hold first place and of these, adenoids are perhaps of the greatest interest to a teacher or parent. It is quite impossible to state just what number of school children suffer from adenoids, but it is safe to estimate the proportion at one in every seven or eight children between the ages of five and fifteen.

Adenoids consist of soft vascular tissue forming a *third tonsil.* It is normal enough until it becomes overgrown. This tissue is found behind the soft palate between the nose and throat. It may completely close this passage and in many cases it becomes so closed when the child takes cold. For this reason an adenoid child breathes part or all of the time with the *mouth open.* This condition is what is known by the term *"mouth-breathing."* Mouth-breathing is not a bad habit that the child has acquired, but indicates that he cannot secure air in the normal manner through the nose, and must get it by breathing through his mouth. The child does much the same sort of thing that we do when we find the air too close in a badly ventilated

room, we open the window. The child opens the only window he possesses which is his mouth, and thus obtains the necessary supply of oxygen. But even under the best of circumstances such a child labors under breathing disadvantages and probably never gets as much oxygen as his body needs.

When one considers that many adenoid children spend much of their time in illy ventilated school rooms and sleep in bed-rooms with tightly closed windows, it is apparent that they labor under a constant and serious handicap.[1]



A Section Through the Nose and Throat Showing Location of Adenoids (Fig. 1.)

Adenoids may occur in infants a few months old but are more likely to be first noticed between the

[1]Of 500 children questioned in the Berkeley schools, it was found that 25% of them habitually sleep in totally unventilated bed-rooms.

ages of three to five years. After puberty (12 to 16 years) they tend to disappear and are seldom found in adults. Because of this well known fact many parents, and unfortunately some physicians, prefer to allow nature to remove the obstruction by her own methods. The child will "out-grow" this, that, and the other difficulty, is a very common expression among such individuals. As a matter of fact there are relatively few physical difficulties which children unaided ever "outgrow" successfully. Adenoids, it is quite true, tend to disappear or be *absorbed* spontaneously, but they leave in their wake a most unfortunate train of results. Usually the teacher and most parents first detect adenoids by means of these unfortunate results. When the symptoms are so pronounced that they are apparent to the rather inexperienced observer, much harm has already been done.

Reading the Index of Adenoids.

Let any teacher look over her room of twenty or more pupils and she will nearly always discover several with some or all of the following signs or symptoms of adenoids:

1. A listless expression (the adenoid face.)
2. A nasal voice.
3. Open mouth (part or all of the time.)
4. An under-developed chin.
5. Prominent and often crooked upper teeth.
6. A short upper lip (a relative matter.)
7. A rather heavy expression in the eyes.
8. A pronounced tendency to colds and catarrh.

9. Slow mentality.
10. A pale face.
11. An under developed physique.
12. A contracted chest.
13. Ear ache.
14. A running ear.
15. Deafness.

Of these signs and symptoms the most common and apparent are *nasal voice, crooked and prominent teeth, earache, deafness, and mouthbreathing.*

At home it will be noticed that the adenoid child sleeps with his mouth open, often snores, and sometimes has "night terrors." If one looks into the mouth the palate will usually be found very *high-arched* instead of broad as in a normal individual. In the majority of children, the tonsils will be found enlarged, and in many of them the lymphatic glands ("kernels") in the neck are swollen.

It is apparent then that adenoids produce various *deformities* which no child will "out-grow" however completely the adenoid tissue itself may disappear. These deformities are chiefly the following:

1. Prominent upper teeth.
2. Crooked upper teeth.
3. Receding or small chin.
4. High arched palate.[1]

[1]The high narrow palate pushes upon the nasal septum causing it to become bent (deflected). This is a common cause of catarrh in the adult.

Children with adenoids usually possess less physical resistance than other children. They fall easy victims to colds and various other contagious diseases, and have little physical endurance or mental vigor, They make slower progress in school and in general are much less buoyant and happy than the normal child.[2]

Adenoids ought to be discovered before these unfortunate results have occurred. This is the duty of the parent and family physician. The first indications of inability to nurse well, mouth-breathing, (while awake or asleep), snoring, and a tendency to colds and catarrh must excite suspicion and the child should then receive a thorough examination by a competent physician. Let no parent trust the individual who tells him that his child will "out-grow" such conditions unless he has made a careful examination and has eliminated the possibility of adenoid obstruction.

Diseased Tonsils.

About one-eighth of school children appear to have seriously diseased tonsils. Most children who have adenoid tissue of sufficient importance to require removal, also have enlarged tonsils. This is easy to understand when we recollect that what we call "adenoids" are made up of a *third tonsil* and consequently their structure is much the same. Enlarged (hypertrophied) tonsils when they do occur without the presence of adenoids are seldom easy to diagnose by meth-

[2]It appears from our present investigations and especially those of Mr. Leonard P. Ayres that children with adenoids spend nine and one-tenth years in the eight elementary grades.

ods of superficial observation. However, a child who is subject to frequent attacks of sore throat, one who has offensive breath or a child with a *thick* voice, ought to be under suspicion of having enlarged or otherwise diseased tonsils. A history of *quinsy or tonsilitis* nearly always indicates tonsils which are abnormal.

It is rare that children who have normal tonsils are troubled with any form of sore throat. Acute sore throat always requires the most careful attention. No one can distinguish ordinary tonsilitis from *diphtheria* unless a *culture* is taken from the throat and a microscopical examination is made. A case of diphtheria which is not recognized early is a very serious matter and often results fatally. This is a fact that teachers and parents ought always to understand in considering the tonsils.

Many tonsils have small holes or crypts in them which become filled with a white cheesy material. Such tonsils are *diseased* and require careful attention.

Sometimes tonsils are so greatly enlarged that they may be observed by merely asking the child to open his mouth. Remember that normal tonsils are barely *visible,* on each side of the root of the tongue. It appears that pupils suffering from enlarged tonsils require about seven-tenths of a year longer to complete their work in the grades than does the normal child.

The Ears.

Ear troubles of various sorts are very common among children and they often interfere seriously with progress in school. The commonest troubles with the ears are the following:

1. Earache.
2. Ear Discharge.
3. Deafness.

Deafness may affect one ear only. It may affect both ears and yet be very slight. It may affect both ears seriously. In fact all degrees of deafness are discovered among school children when the hearing is carefully examined.

When deafness is discovered it will usually be learned that the child has, or has had, adenoids, (see discussion of adenoids). There will usually be a history first of ear ache, followed sooner or later by discharge or what the child invariably calls *running ear*. On the other hand, pain in the ears or discharge, or both, indicate that unless promptly treated deafness will inevitably occur in the great majority of cases. Pain, discharge, and deafness are not incidental conditions to be rather expected in childhood, as so many parents seem to suppose. They are in reality warning signals of conditions which unless heeded lead to serious and often permanent defects of hearing.

"Pain in the ears is almost always an indication that an acute inflammatory process is developing. Ear-ache is of the greatest diagnostic value in all diseases of the ear, and as a rule is the only (or at least earliest) symptom observed by parents, teachers, and physicians. * * * Ear-ache may be, and as a rule is, the only symptom indicating the development of an acute disease of the middle-ear with all its profound and alarming complications, even of the membranes of the brain (brain-fever)." *

In this same article by Dr. Zuill parents are most strongly advised against treating children with earache drops. Such treatment only serves to give a false idea of security and never cures the conditions which are causing the pain. Pain of all sorts is Nature's warning signal that something is wrong. It is not a disease but a *symptom of disease.* It is never right to stop the pain without first attempting to discover its cause. Pain is like a bell-buoy on a dangerous rock—it points to the place of trouble. One may easily stop the bell from ringing, but the dangerous rock is still there.

The Index of Ear Defects.

Besides the symptoms named, pain, discharge, deafness, there are other indications of ear troubles (one or several of which may present themselves,) which an intelligent teacher or parent ought to be able to detect. These include the following:

1. Inattention.
2. Headache.
3. Poor Spelling.
4. Expressionless Voice.
5. Imperfect Articulation (because clear speech is not heard).
6. Irritability.
7. Stupidity of Countenance.

Many children learn to spell by *hearing* rather than by *sight,* and consequently such pupils if deaf are considerably hampered in this respect.

*Earache in Children, Los Angeles Medical Journal, January 1905, Dr. W. L. Zuill, Pasadena.

One ought always to keep in mind that *catarrh* leads to deafness, and in itself indicates the necessity for an examination of the hearing A child with normal hearing should hear the tick of the average watch when placed in a line with the ear, about two feet away. In testing the ears the eyes should be shut and one ear closed with a finger of the same side. A loud whisper with lips turned away from the listener should be heard about 25 feet away. To what extent defective hearing interferes with school progress is not at present possible to state exactly. That it does exert a definite unfavorable influence is, however, abundantly proven.

The following rather ordinary cases of ear, nose and throat defects taken from a great many others among my experience, will illustrate what may be found in almost any school anywhere.

1. A twelve year old girl showed signs of very poor general physical development. She was stunted in growth, had red eyelids, was slightly deaf, possessed a very slow mentality and suffered from constant colds.

The usual physical examination at school showed enormous tonsils nearly meeting in the middle line of the throat. The nose was also obstructed with adenoids. As the parents could not afford to pay for medical treatment the child was sent by the school nurse to a competent specialist who volunteered treatment. Since her operation the child's eyes are nearly well, her hearing is *acute*, she seldom has colds, and her growth and general mental and physical condition have greatly improved.

A Type of Child Often Seen in the Schools
(Adenoids.)

2. A little girl of seven years suffered from constant ear-ache and running ear. For a long time the mother had washed out the ear with a strong solution of *tea.* She said that the child had had ear trouble since she was two years old and supposed she would always have it so saw no need of consulting a doctor. She was finally persuaded to bring the child to the clinic where proper treatment, including the removal of adenoids, practically cured the condition in five week's time.

3. A boy fourteen years old had been deaf for nearly a year and ear ache was almost constantly present. He

had never been taken to a doctor but the well-meaning though misguided mother had carefully poulticed his ears each night with *hot bread.* It was quite impossible to make this mother understand the harm that this sort of treatment was doing. At last, as the boy's condition became much worse, the mother consented to have him sent to a physician. An examination showed that both ear drums were *ruptured* and that there was chronic inflammation of the middle ear present. The boy received the best possible care and at present is at least free from pain. In this case permanent deafness might easily have been prevented by early detection of the trouble and prompt medical attention. As it is the boy's earning power in the world is greatly reduced and he will pass through life with a serious and quite unnecessary handicap.

The common habit of putting good food in bad places would be funny if it were not often so serious a matter. Ears are washed with hot *tea;* sore throats (sometimes diphtheria) are wrapped in *bacon*; sore chests are covered with stewed *onions;* boils are poulticed with *bread and milk;* and various other articles of food are wasted on the *outside* when they might do considerable good on the *inside.*

4. A young girl of about sixteen years of age was employed in an Oakland Market where she worked daily on a wet asphalt floor. Repeated attacks of sore throat and rheumatism affecting many joints, brought her to a physician who at once discovered very large *buried* tonsils, although an ordinary inspection of the throat showed little evidence of tonsilar disease. A

heart murmur was also discovered, indicating a probable infection through the tonsils. Immediate removal of the tonsils was advised to prevent further infection, with more serious heart complication. This advice was however ignored, and one month later the girl died of *endocarditis*, i. e. inflammation of the heart. This inflammation of the heart was, in this particular case, undoubtedly brought about by direct infection through the diseased tonsils, and prompt surgical attention would probably have prevented the disastrous result which followed neglect of treatment.

The close relation which often exists between diseased tonsils, tonsilitis, rheumatism and certain forms of heart disease is frequently observed by medical men.

5. In looking over a 5th grade one day I observed a child of singularly listless apathetic appearance. She was pale and anæmic; she breathed with her mouth open displaying a set of extremely crooked and decayed teeth. Her voice was *nasal* and her articulation most imperfect. Her progress in school had been slow and generally unsatisfactory. Upon closer investigation I found an extraordinarily high arched palate and the roof of the mouth so *contracted* that the forefinger could be barely passed in between the upper teeth of each side. The tonsils were large and adenoids obstructed the nose. Notification to the parents of the condition present produced no result, nor did a home visit on the part of the nurse. One year later this girl now thirteen years of age, was sent to me again for examination. The second teeth were now erupting in the most irregular manner possible, and the roots of the

first teeth everywhere surrounded them. The deep narrow slit forming the roof of the mouth was filled with erupting second teeth, much delayed by the presence of the persistent but decayed first teeth. Mastication had become practically impossible because of *mal occlusion* of the teeth, and the child showed every evidence of profound nutritional disturbance. Her ignorant parents still think that she is too young to have the condition attended to and that in a measure she will "out-grow" the trouble later. In the meanwhile Mary is very rapidly developing a deformed face and a jaw with teeth more like those of some fishes than a human being's, for the inside of her mouth is now filled with misplaced teeth!

Resume on Nose, Throat, and Ear Troubles in Children.*

An examination of school children shows that many of them suffer from nose, throat, and ear troubles. Probably at least 25% of our children in the schools of the United States have such defects. Why this is so we do not exactly know.

Parents are very likely to be unfamiliar with these conditions. Often they do not know when their own children are afflicted in this way.

No child can do his best work in school if he is suffering from some nose, throat, or ear trouble. The commonest conditions found in such children are enlarged, diseased **tonsils, adenoids, earache, ear discharge, and deafness.**

The tonsils are glands in the throat, one on each side of the root of the tongue. When they are in a healthy condition they are barely visible. They often become much inflamed and sometimes there is pus present in them. They may obstruct breathing.

Any child with diseased tonsils is likely to be sickly.

*The following is published in pamphlet form for distribution in the parent's clubs of the Berkeley schools.

Any child with diseased tonsils is likely to have many attacks of sore throat, or tonsilitis.

Diseased tonsils may result in Rheumatism and disease of the heart.

Any child with diseased tonsils is very susceptible to contagious diseases.

Any child with diseased tonsils has an increased tendency toward consumption.

No child can be well or do his best work in school with diseased tonsils.

Diseased tonsils should usually be removed and should always be treated. The operation is not dangerous. It always improves the child's health.

Adenoids are soft spongy growths behind the soft palate, between the nose and throat. A child with adenoids usually breathes with his mouth open. He cannot breathe well through his nose. **Mouth breathing is not a habit.**

Adenoids cause a child to sleep with his mouth open.

Adenoids often cause a child to snore.

Adenoids nearly always make the teeth come in crooked.

Crooked and prominent teeth are nearly always caused by adenoids.

Adenoids make a child take cold easily.

Adenoids often give a child a stupid appearance.

Adenoids often result in actual stupidity, because the child cannot get enough air.

Adenoids often cause earache and deafness with sometimes a running ear. Catarrh, deafness, earache and discharge from the ear, are more often due to some obstruction in the nose or throat than to anything else.

Adenoids usually result in delicate health.

Adenoids must be removed if you expect a child to be healthy or mentally bright.

It is an injustice to children to neglect caring for them when adenoids or diseased tonsils are present. It is very poor economy on the part of the parent to neglect the treatment of children so affected. Any child will grow up healthier, happier, and more useful, if these conditions are taken care of.

CHAPTER II

DEFECTS OF VISION.

While most other defects tend to decrease in number with age and development, defects of vision increase as one passes from the examination of the children of the lower to those of the higher grades in our schools.[1] A recent examination in the schools of New York city shows that about 30 per cent of the children suffer from various kinds of ocular defects which are serious enough to require correction. Of 400,000 pupils examined in the schools of Massachusetts, 81,000 had defective eyesight. In the schools of Berkeley I have thus far found about 17 per cent with visual defects serious enough to need correction, while in a Polytechnic School in Pasadena, the proportion reached about 35 per cent in my tests during 1908.

Eye strain results from various kinds of defective sight and carries with it sooner or later conditions which may seriously affect the nervous system. Many a case of nervous prostration or *Neurasthenia* has come to an individual in later life from such uncorrected faults of vision. Many a child in every large public school is today stumbling along the educational road, with vision so poor that he cannot read at 20 feet what a child with normal sight reads with ease at 200 feet.

In nearly every schoolroom is found one or more children with "crossed-eye." Test this eye by covering the

[1]Leonard Ayres has shown that in general "retarded" pupils are less defective than those unretarded, the explanation being that retarded pupils are older.

straight one with a piece of card-board and if the child is over eight or ten years of age, he cannot in the majority of cases tell the number of fingers held up at a distance of twelve feet from his face, and often such an eye is practically blind. Yet the early discovery of crossed eye and its complete correction with proper glasses will usually save the sight and often bring the eye around to its normal position.

Poor vision not only makes the acquirement of an education a work of great difficulty, but it reduces the *earning power* of the individual later in life very considerably. It is only through our special senses, of which sight is one of the most important if not indeed the primary, that we form any notions of the external world. All education in fact is acquired by means of the organs of special sense. Limit any one of these avenues of contact with the world and it is only by means of the over-development in acuteness in some or all of the other sense organs that the defect may be at least in part offset.[1] Even then the result is usually quite imperfect and education becomes a difficult problem. Limit or destroy any one of our avenues of contact with our environment and a definite receiving area of the brain is dimmed and blurred. Blurred vision for example, may mean a blurred visual area in the brain. Is it any wonder that children with such mental blurs often require a longer period than a normal child to finish a grade or that they complete their work only by the expenditure of an enormous amount of nervous energy?

[1]The reader is referred to that remarkable and delightful little book by Helen Keller, "The World I Live in."

"Education pre-supposes health." In the past poor vision has never been regarded as an indication of unsound health. Today we know better.

"The intimate relation between muscle and nerve-center, the functional correlation of every organ with every other, cannot be too thoroughly grasped if a sound theory of training is to be built up."

The Index of Eye-Defects.

1. "Sore eyes," or chronically inflamed eyelids.
2. Styes.
3. Congested (red) eyes.
4. Crossed eye, occasional or constant.
5. Holding book nearer than one foot from the face.
6. Inability to read easily from the seat the writing on the blackboard.
7. Inability after ten years of age to read ordinary print at a distance of four inches from the face.
8. Holding the book more than fifteen inches from the face.
9. Squinting or blinking.
10. Reading with the head turned to one side, or *sloping* the head.
11. Headache.
12. Usually poor readers and spellers.
13. Avoidance of light.
14. Hairless eyelids.
15. Stooping posture.

Some interesting and illustrative eye cases have come to my attention in the Berkeley and other schools

and are briefly described here because it is evident that similar instances will be found in most schools. Only average cases however have been selected in the following illustrations.

1. A girl of ten years was very nervous, complained of constant headache, and did very poor work in her studies. The parents were opposed to doctors and refused to allow the child to have her eyes examined or to receive any medical care. The case was reported to the Society for the Prevention of Cruelty to Children and the parents forced to let the child have the necessary medical attention. Her eyes were examined, the defect discovered and she was given proper glasses. Since wearing the glasses, her eyes and whole general condition have greatly improved, her headaches have disappeared and her mind is bright.

2. A little boy nine years old had spent two years in the first grade He could neither learn to read nor spell, but he appeared bright enough and was physically well and strong. An examination of his eyes was made and it was discovered that the child could not read ordinary print *six inches* away from his eyes. He was referred to an oculist at once and given proper lenses to correct his defective vision. In six months time this boy was reading as well as other children of his age, and was able to read some parts of the newspaper to his blind mother.

Squint eyes or crossed eyes are found relatively often in our schools, but the seriousness of this defect of vision is rarely realized. Most often the condition is regarded as a *blemish*, but nothing more. Par-

ents and teachers are astonished to discover that the crossed eye after eight or nine years of age and often earlier is sometimes nearly or quite blind and frequently very greatly reduced in powers of sight.

3. I observed two brothers about eight and ten years of age in one school both of whom had badly crossed eyes. A notice to the father brought him to the office with the remark that he was perfectly familiar with the fact that his boys were "cross-eyed" and didn't need a school physician to tell him so. "I would be glad," he said, "if my boys had straight eyes and were better looking, but Nature made them that way and I can't afford to spend money *beautifying* these boys, so I guess they can worry along." This father was a Master Mechanic by trade, but was anxious that his boys should "do something better in life." In his judgment a *clerkship* was a more desirable position. I demonstrated to him that each of the boys was rapidly losing the vision in one eye and succeeded in showing him that unless remedied the sight would be lost in the bad eye in each case. I then explained to him about how much this misfortune would reduce the future *earning power* of his boys. The father listened attentively, the commercial side of the argument appealed to him, and he exclaimed: "Please send me to the nearest oculist, those eyes must be saved!"

4. A boy of twelve years of age was reported by his teacher for examination because of a "sore-eye." A superficial examination at once showed a *corneal ulcer* of several days standing, which had been entirely neglected. This boy was an inmate of a high class

children's home, yet his condition had never been observed by the Matron. Only immediate careful attention on the part of the oculist to whom he was referred saved the sight of the eye. Such oversight of serious physical defects in this children's home was by subsequent examinations of other pupils from the same place found to be extremely common. Only the ordinary and most evident ailments of childhood received any attention here, despite the fact that a physician was supposed to care for the health of the children. This state of affairs exists in most children's homes, as well as in reform schools and other institutions for juvenile offenders.

5. A teacher in one of the lower grades had been complaining for a couple of years of extreme nervousness and general lassitude No eye symptoms of the usual sort had been observed by herself or by her physician. She had a number of times been on the verge of a nervous collapse and had been almost constantly under medical treatment. A routine examination of the eyes established the cause of the trouble. Pronounced astigmatism existed. When this was corrected with proper glasses, all the nervousness and general debility disappeared as if by magic and to her astonishment she could read signs and see other common objects from the street cars, which formerly she had supposed appeared blurred to everyone.

Resume on the Results of Uncorrected Defective Eye-sight.[1]

Defects of eye-sight in school children are very common. Probably at the lowest estimate 20% of the children of our American schools suffer from such defects.

These defects not only cause a great deal of trouble in the eyes themselves, but often produce many other serious results, which do not at first seem to be associated with the eyes.

The proper treatment of children's eyes will nearly always bring good results. In this way they will often be saved from life-long suffering.

A child's education will not be worth much to him if he does not have good eye-sight. The ability to earn a good living depends very largely upon good eye-sight. It is very poor economy to neglect to care for defects in the eyes of children, for sooner or later such children may become burdens upon some one. The common defects of the eyes of children are as follows:

1. **Near Sight**—(The eye is too long).

This condition is very serious. It not only limits the child's range of vision and prevents his taking part in health giving sports and recreation, but it produces changes in the eyes which often result in practical blindness.

2. **Far Sight**—(The eye is too short).

This condition is more common than near sight. It results in eye strain and often causes squinting, red eyes, headache, nervousness, backwardness in studies, and sometimes digestive disorders and poor health generally.

3. **Astigmatism**—(Irregular curvature of cornea or lens).

This is the most common of all eye defects. It results in blurred vision, headache, nervousness, and other kinds of discomfort. It may be associated with either near sight or far sight.

4. **Cross Eyes or Squint.**

This is often the result of **far sight.** It is absolutely neces-

[1]Published in pamphlet form for the use of the parents of the Berkeley school children.

sary to have this defect corrected. In children this can usually be done with glasses alone. If the trouble is not cured the vision of the crossed eye will often become poorer and poorer until at last this eye becomes practically blind.

5. Inflamed or Red Eyes.

This condition is often caused by a defect in vision, but frequently it is due to infection, that is something has gotten into the eyes and carried pus producing germs with it.

Serious eye disorders are sometimes "caught" from dirty towels, public bathing pools, dirty hands, or dust.

Each child and grown person should use his own towel. Red sore eyes ought never to be neglected. Remember that many cases of sore eyes are contagious and that all such cases need the attention of a doctor.

CHAPTER III

DEFECTIVE TEETH.[1]

From 50 to 90 per cent of children in the grade schools suffer from defective teeth.[2] Dr. Osler has said that the intelligent consideration of dental hygiene is of greater importance to a nation than that of the consumption of alcohol, great as that is. In most of our public schools, teachers are attempting to teach Physiology and Hygiene to pupils, the majority of whom possess mouths constantly unhygienic.

If the Physiology and Hygiene of the mouth alone were practically and thoroughly taught, it would accomplish far more good for the child than any amount of the usual perfunctory text book work. Children who recite excellent lessons in Hygiene frequently have conditions present in their mouths which are appalling. Let any teacher who doubts this statement examine even superficially the teeth of the pupils in an average grade and she will be convinced of the truth of this statement. Decayed teeth are a constant menace to a child's health. They furnish a lurking place for various sorts of dangerous bacteria. They constantly contain food which has undergone decomposition and which consequently furnishes *toxins* which are absorbed. Faulty states of nutrition, bad teeth, and enlarged lymph glands in the neck, are

[1]For some of the material and forms of expressions in this section the author acknowledges his indebtedness to the excellent pamphlet called "The Why and How of the Teeth." Distributed by the Alameda County Dental Society.

conditions which usually accompany one another. Bad teeth cause bad digestion, and bad digestion often causes bad teeth. If you have one you are pretty certain to have the other.

Many cases of Neurasthenia seem to be due at least in part to diseased teeth. Sir Frederick Treves, the English surgeon, states that over and over again it would appear as if the want of proper and efficient teeth had been the direct cause of attacks of *appendicitis*. Constipation, says Dr. J. H. Kellogg of Battle Creek, is the most common malady of civilization, except one—decay of the teeth—and the two disorders often go together. Without good teeth we cannot chew our food properly, and the food is unfit for digestion. The result is indigestion and constipation, poisonous decomposition by bacteria in the intestines, and liability to the whole brood of dangerous diseases—such as appendicitis, auto-intoxication, etc.—that come through wrong eating. To have good health we must masticate thoroughly and to masticate thoroughly we must have sound teeth.

One must never imagine that a child's temporary teeth can be safely neglected because a second set comes later. A child rarely has a good set of second teeth if the first have been neglected. It is exactly as important to care for the first teeth both personally and by means of the aid of a dentist, as it is to do the

[2]In the Pasadena and Berkeley High Schools less than 3% of the students showed uncorrected defects of the teeth." Natural Selection" certainly plays an important part in eliminating the physically unfit from our schools, and to this fact at least in part is due the marked diminution of defects of the teeth in the higher Schools.

same for the permanent set. To neglect your children's first teeth is even a greater crime than to neglect your own, for it stores up endless misery for their later years of life.

If systematic examinations were made of the mouths of the children in our public schools and if common sense dental hygiene were enforced, the death rate in this country would be very considerably reduced, the amount of sickness decreased, and a stronger race would result in consequence of such rather simple measures.[1]

The Index of Bad Teeth.

1. Poor general nutrition.
2. Prominent upper teeth.
3. Inability to keep the mouth closed.
4. Crooked teeth in sight.
5. Decayed teeth in sight.
6. Offensive breath.
7. Pallor.
8. Enlarged lymph glands in neck.
9. Tooth ache.
10. Swollen face.
11. Swollen gums.
12. Sore gums.
13. Indigestion.
14. Excessive saliva.
15. Acknowledgment of never having been to a dentist.
16. Acknowledgment of not using a tooth brush.

[1]Since the opening of the Berkeley Dental Dispensary, an average of eighteen pupils per week have been cared for.

17. Dirty looking teeth.
18. Receding gums.
19. Some defects in articulation.
20. Broken teeth.[1]

When no school physician or school dentist is available for conducting examinations, then the teacher or parent ought to observe the points enumerated above and if any of them are noted, consult a dentist at once. Every child ought to see a dentist every six months. "The money spent for one good (dental) house cleaning of one child at fourteen or eighteen exceeds the cost of keeping clean and in repair the teeth of the entire family when done systematically every few months."

"The total time required to examine school children for teeth needing attention is much less than the time lost by absence from school or wasted at school on account of toothache."

Very often the temporary teeth are so badly neglected that serious decay sets in. Under these conditions the roots do not properly absorb, and the second teeth are consequently pushed out of line by the obstruction formed by the roots of the first. This is one of the commonest causes of *crooked* teeth. Sometimes second teeth are in this way so crowded out of place that one or more appear in the roof of the mouth. Whenever teeth erupt in a crooked manner they interfere with articulation, and sometimes to a very marked degree. Such teeth also seriously interfere with

[1]Some of these points do not necessarily indicate bad teeth but they are suggestive of dental trouble.

proper mastication, and consequently with nutrition. If the first teeth decay early and come out, the second teeth will often appear much too soon and before the jaw is sufficiently expanded. This also results in crooked teeth. The effect of adenoids in causing crooked teeth has already been discussed in Chapter I.

Three Portraits Showing the Improvement in Appearance Due to Removal of Adenoids and the Straightening of the Teeth
(By Permission of Dr. A. H. Suggett)

Particular attention should be given to the *sixth year molars.* These are nearly always mistaken for *temporary teeth*, while as a matter of fact, they are the *first permanent teeth.* They can be easily recognized by remembering that they are the double teeth which appear in the mouth at the sixth or seventh year. *Once lost they will never be replaced.*

Abscesses of the gums are met with very commonly in School Dispensary work. Nearly every dental case which comes to the Berkeley Dispensary has either

dead nerves or abscesses present. A dead nerve in time is always followed by abscess formation.

In one school girl of fourteen, twenty teeth were found badly decayed, and four of the molars were so nearly gone that extraction was necessary. Many of these teeth might have been saved entirely from decay, and the remainder preserved with small fillings if there had not been serious neglect of dental hygiene.

It is not at all uncommon to find school dental cases with a dozen or more seriously decayed teeth. Hereditary Syphilis is occasionally observed in the Berkeley Dispensary as indicated by Hutchinsonian teeth (notched front teeth).

Some Cases of Dental Neglect.

1. A child eleven years of age was sent to me for examination because of extremely poor physical development. An examination of the mouth showed an astonishingly bad condition. Many of the teeth were badly decayed and the gums in several places were *discharging pus.* This was a case of *pyorrhoea* due to neglected teeth. This little girl was suffering from constant *sepsis*, i. e. poisoning from the absorption of pus. The pulse in this case was 125 and the child was very nervous. A notice to the parents yielded no results and indeed produced nothing but offense. In such instances education must begin with the parents at home.

2. A girl of about thirteen was seen in another school, the condition of whose mouth and teeth beggared description *Fringes of decayed first teeth* sur-

rounded the second teeth Everywhere *pus* was discharging from the gums The second teeth through direct infection from the first, were also seriously decayed, and fermenting food particles were everywhere present. Yet the condition of this child's teeth had never been observed by her teacher or by her parents Such a case requires careful attention just as much as does any other case of *infection*, yet our schools go on complacently teaching "Physiology and Hygiene" to hundreds of children whose mouths are constantly in nearly as bad condition as in the case just described.

3. In another school the principal sent to me for examination a boy about twelve years of age, because he was supposed to have either an obstruction in the nose or defect of the teeth which interfered with his articulation. It was almost impossible to understand anything this boy said and consequently he made very poor progress in school. Upon looking into his mouth I discovered that *most of the hard palate was gone.* At first I took this for an unusual case of cleft-palate, but further examination brought out the fact that this boy was suffering from *hereditary syphilis* with consequent destruction of the bones of the roof of his mouth. The cavities of the nose and throat opened into each other in such a manner as to form practically *one cavity.* Neglect of proper medical treatment had brought about this ulceration and final bone destruction of the mouth, most of which had occurred in the last eighteen months. Contrary to the usual opinions of the public, syphillis is usually *curable* if taken in time and vigorously treated for an extended period. In this in-

stance the child was placed under treatment to stop further ravages of the disease and sent to the San Francisco Dental Clinic, where a plate was fitted in his mouth which effectually closed the great gap into the nasal cavity. The boy can now enunciate almost perfectly and will be able to make satisfactory progress in school and later obtain employment, neither of which could he have done in his former sad condition without treatment if indeed he had lived.

If such various unhygienic conditions of the mouth just described do not offend the health standards of the community, they at least ought to offend their *æsthetic* standards.[1]

[1] I find that about 40% of the children in the grades have from five to ten decayed teeth.

CHAPTER IV

CONTAGIOUS DISEASES AND SCHOOL SANITATION.

As a purely school commercial enterprise the control of contagious diseases and proper attention to School Sanitation is an excellent business investment. Attention to each of these conditions costs considerable money, but in the end very much more money is saved for the school, the family, and the community. If one takes into consideration the amount of time lost by school children through contagious diseases, and the consequent expense for medical attendance, to say nothing of the cost of lowered general vitality to the individual, the money value of sensible hygiene and sanitation in schools is at once evident.

Every school ought to keep a very careful record of all its contagious diseases and then estimate how much loss results in appropriation (based upon average daily attendance). As an interesting experiment let the school then attempt to discover about how much money is spent in one year for medical attention in contagious diseases among its school population. The results of such estimates would furnish arguments for practical health supervision which could not fail to appeal to the reason of all reasonable people.[1]

"We can read the index of 'catching' diseases," says Mr. W. H. Allen in Civics and Health, "before the outbreak that calls in the physician. School ex-

[1]One of my students in the University of California has made a study of this problem in Berkeley.

amination shows which children have defects that welcome and encourage disease germs. It points to homes that cultivate germs, and consequently menace other homes. To locate children who have enlarged tonsils may prevent a diphtheria epidemic. To detect

The Sanitary Drinking Faucet[1]

in September those who are under-nourished, who have bad teeth, and who breathe through the mouth (mouth breathers), will forecast winter's outbreaks of scarlet fever and measles. One dollar spent at this season in examination for soil hospitable to disease germs may save fifty dollars otherwise necessary for cure of contagious diseases. * * * Every teacher can be the sanitary engineer of her own school room or

[1]The Haws Faucet.

school, by co-operating with the school doctor, the town board of health, family physicians, and mothers. * * * First she must know that 'children's diseases' are *not necessary.* She should discountenance the old superstition that every child must run the gamut of children's diseases, that every child must sooner or later have whooping cough, measles, chicken-pox, mumps, scarlet fever, just as they used to think typhoid fever and malaria inevitable (in certain districts). The price of this terrible ignorance has been not only expense, loss of time, acquisition of permanent physical defects, and loss of vitality, but, for the majority of children, death before reaching five years of age. * * * The daily inspection of school children for contagious diseases by the school physician (or competent teacher) has, where tried, been found to reduce considerably the amount of sickness in a town. The teacher should be conversant with the early signs of these diseases so that on the slightest suspicion the child may be sent home without waiting for the physician's call (or the late symptoms of the disease). * * * The 'easy' diseases such as measles, whooping cough, etc., cost our communities more than the more terrible diseases like typhoid and small-pox."

Except for physicians, knowledge of the *details* of communicable diseases are rarely necessary. For this reason only some general statements about them and an outline table of their main features will be presented here. It must be understood also that generally only those signs are indicated which appear early

in each disease. In this manner confusion will be avoided and the way made clear for the teacher or parent to recognize any particular children's disease early in its course.

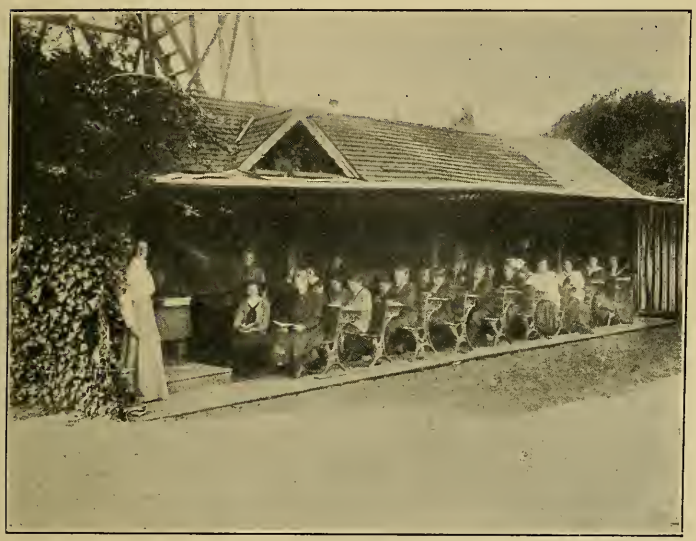
Such early recognition of these diseases of childhood will in many instances prevent an *epidemic* in the school or home and in the end save much time and money and prevent many serious sorts of complications, which often incapacitate the child for his fullest future usefulness and happiness.

It will be well to keep in mind the following general facts in regard to children's diseases which are usually little understood, or if understood, very generally disregarded.

The *mouth* is more often the place of entrance of contagious diseases than any other place. For this, among other reasons, particular attention should be given to the hygiene of the mouth. Decayed teeth undoubtedly favor the contraction of contagious diseases, not only so, but they harbor disease germs which may at any time, and particularly at periods of low resistance, attack the individual himself or be conveyed to others by means of coughing, exchanging food, pencils, books, etc.

One ought especially to keep these facts in mind with respect to colds. Colds are probably about the most contagious form of disease we have, yet many, if not most people still go on regarding them as due to drafts, getting wet, to "night air" and similar delusions. As a matter of fact anything which is capable of reducing our *resistance* makes it easy for cold germs to gain the ascendancy but the cold is directly due to the *germ or*

germs, and these causes should not be confused with the predisposing factors. "A cold can always be charged to someone else. How many can be laid to our account? There is one right that is universally not recognized and that is the right of protection from the



AN OPEN-AIR CLASS
(By Permission of Glen Taylor Private School, Alameda, Cal.)

germs showered in the air we breathe and over the food we eat, in the school, street car, and at the restaurant. The chief danger of a cold is to our neighbor, and not to ourselves. A cold which a strong person may throw off in a day or two may mean death to his tuberculous (or otherwise debilitated) neighbor."

Sometimes a single child with a cold may infect an

entire class or all of his family. Before very long we shall no doubt exclude children with "colds" just as we now do children with diphtheria.

"The great preventive measure to be taken for catching diseases—colds, diseased glands—in fact all germ disease, is the repeated cleansing of those portions of the human body in which germs find lodgment—the mouth, the nose, the eyes, and the ears."

To this should be added that diseased tissues in any of these organs must be *cured* or *removed,* for such tissue is a constant breeding place and focus of dissemination for disease germs. This is one of the strongest arguments in favor of giving prompt attention to adenoids, diseased tonsils, discharging ears, sore eyes and bad teeth. Clean, healthy tissue can rarely if ever be infected with disease germs.

CONTAGIOUS DISEASE TABLE.

With Acknowledgements to Civics and Health (Allen) and to School Hygiene (Porter)

DISEASE	PRINCIPAL EARLY SIGNS AND SYMPTOMS	METHOD OF INFECTION	REMARKS	Period of Quarantine Rec.	Period of Exclusion Recommended
Measles	Begins like cold in the head, with feverishness running nose, inflamed and watery eyes, and sneezing; small crescentic groups of mulberry-tinted spots appear about the third day: rash first seen on forehead and face. The rash varies with heat; may almost disappear if the air is cold, and come out again with warmth.	Forced exhalation and discharges from nose and mouth.	After effects often severe. Period of greatest risk of infection first three or four days. before the rash appears. May have repeated attacks. Great variation in type of disease. Often fatal.	3 weeks	Four to five weeks
German Measles	Illness usually slight. Onset sudden. Rash often first thing noticed; no cold in head. Usually have feverishness and sore throat, and the eyes may be inflamed. Rash something between Measles and Scarlet Fever, variable.	Forced exhalation and discharges from nose and mouth.	After effects slight.	3 weeks	3 weeks

CONTAGIOUS DISEASE TABLE—Continued

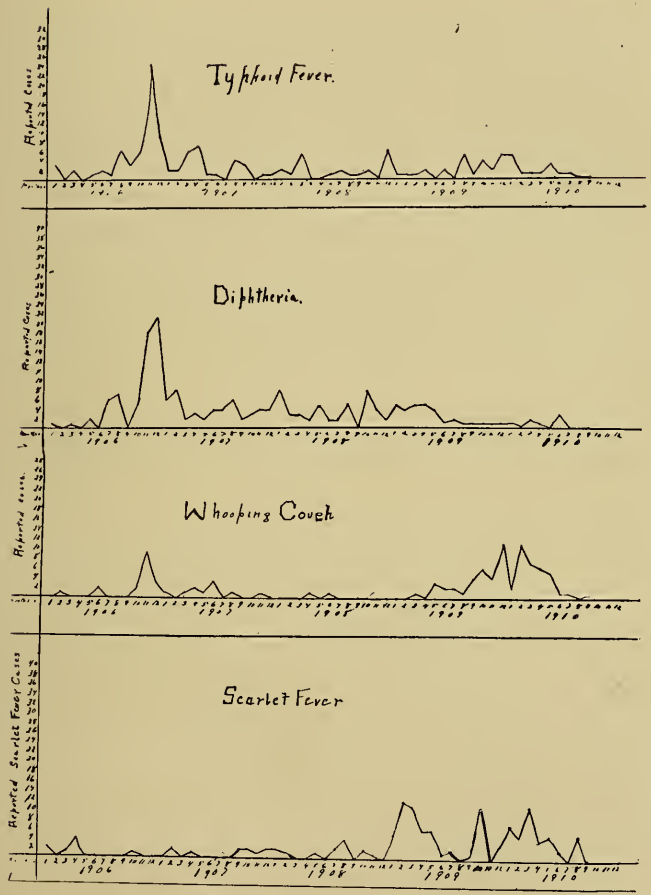
DISEASE	PRINCIPAL EARLY SIGNS AND SYMPTOMS	METHOD OF INFECTION	REMARKS	Period of Quarantine Rec.	Period of Exclusion Recommended
Chicken Pox	Sometimes begins with feverishness but is usually very mild and without sign of fever. Rash appears on second day as small pimples, which in about a day become filled with clear fluid. This fluid then becomes matter and then the spot dries up and the crust falls off. May have successive crops of rash until tenth day.	Forced exhalation and crusts on the spots.	When children return, examine head for overlooked spots. All spots should have disappeared before child returns. A mild disease and seldom any after effects.	1 to 2 weeks	Till all scabs have disappeared.
Scarlet Fever or Scarlatina	The onset is usually sudden, with headache, languor, feverishness, sore throat, and often the child is sick. Usually within twenty-four hours the rash appears, and is finely spotted, evenly diffused, and bright red. The rash is seen first on the neck and upper part of chest, and lasts three to ten days, when it fades and the skin peels in scales, flakes, or even large pieces. The tongue becomes whitish with bright red spots. The eyes are not watery or congested.	Forced exhalation, and discharges from nose and mouth, particles of skin, and discharges from suppurating glands or ears. Milk especially apt to convey infection.	Dangerous both during attack and from after effects. Great variation in type of disease. Slight attacks as infectious as severe ones. Many mild cases not diagnosed and many concealed. The peeling may last six to eight weeks. A second attack is rare. When scarlet fever is occurring in a school, all cases of sore throat should be sent home.	14 days	Six to eight weeks or until desquamation has ceased.

CONTAGIOUS DISEASE TABLE—Continued.

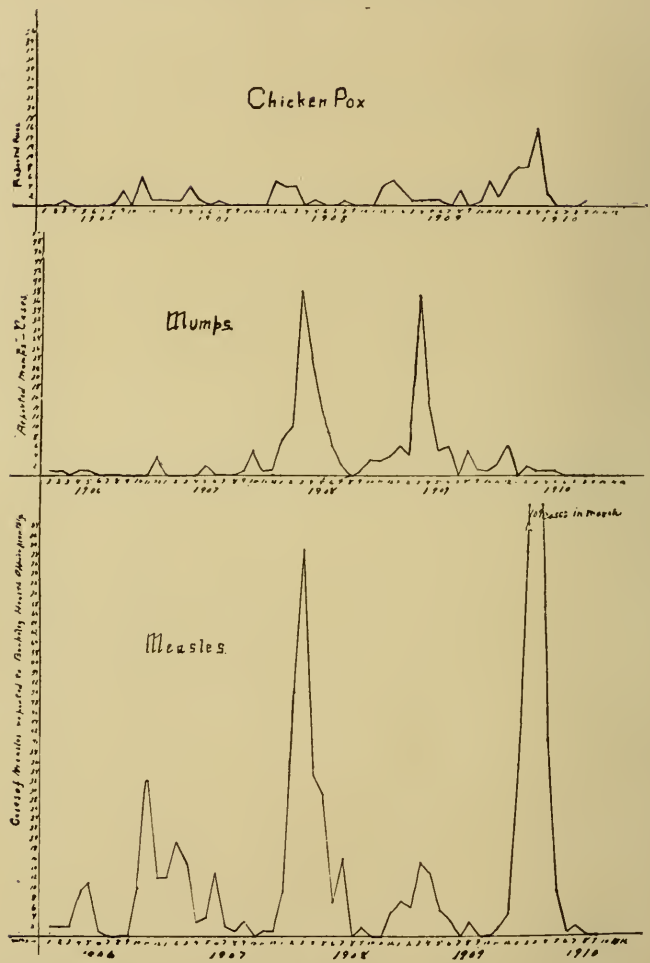
DISEASE	PRINCIPAL EARLY SIGNS AND SYMPTOMS	METHOD OF INFECTION	REMARKS	Period of Quarantine Rec.	Period of Exclusion Recommended
Diphtheria	Onset insidious, may be rapid or gradual. Typically sore throat, great weakness, and swelling of glands in the neck, about the angle of the jaw. The back of the throat, tonsils or palate may show patches like pieces of yellowish-white kid. The most pronounced symptom is great debility and lassitude, and there may be little else noticeable. There may be hardly any symptoms at all.	Forced exhalation and discharges from nose, mouth and ears.	Very dangerous both during attack and from after effects. When diphtheria is occurring in a school all children suffering from sore throat should be excluded. There is great variation of type, and mild cases are often not recognized but are as infectious as severe cases. There is no immunity from further attacks. Fact of existence of disease sometimes concealed. Membrane may occur in nose only.	14 days	Six weeks or until all diphtheretic germs have disappeared from cultures taken from throat
Whooping Cough	Begins like cold in the head, with bronchitis and sore throat, and a cough which is worse at night. Symptoms may at first be very mild. Characteristic "whooping" cough develops in about a fortnight, and the spasm of coughing often ends with vomiting.	Forced exhalation and discharges from nose and mouth	After effects often very severe and the disease causes great debility. Relapses are apt to occur. Second attack rare. Specially infectious for first week or two. If a child is sick after a bout of coughing, it is most probably suffering from whooping cough. Great variation in type of disease.	3 weeks	Two months or until cough and vomiting cease.

CONTAGIOUS DISEASE TABLE—Continued.

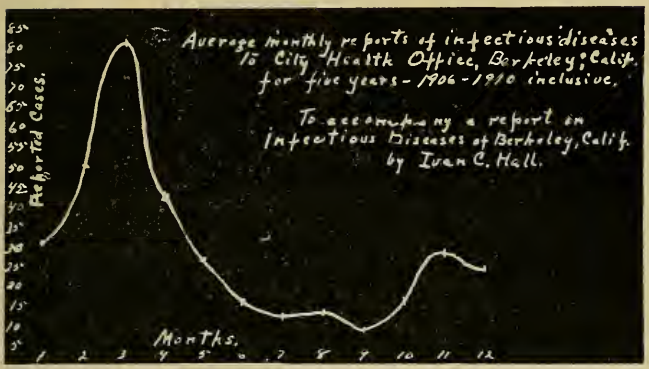
DISEASE	PRINCIPAL EARLY SIGNS AND SYMPTOMS	METHOD OF INFECTION	REMARKS	Period of Quarantine Rec.	Period of Exclusion Recommended
Mumps	Onset may be sudden, beginning with sickness and fever and pain about the angle of the jaw. The glands become swollen and tender, and the jaws stiff, and the saliva sticky.	Forced exhalation and discharges from the nose and mouth.	Seldom leaves after effects. Very infectious.	3 weeks	About a month.
Influenza	Begins with feverishness, pain in head, back and limbs, and usually cold in the head.	Forced exhalation and discharges from nose and mouth.	Excessively infectious. After effects often very serious and accompanied with great prostration and nervous disability.	2 to 4 weeks	About 3 weeks.
Smallpox	Illness is usually well marked and the onset rather sudden with a feverishness, severe backache, and sickness. About third day a red rash of shotlike pimples, felt below the skin and seen first about the face and wrists. Spots develop in two days, then form little blisters, and in other two days become yellowish and filled with matter. Scabs then form, and these fall off about the fourteenth day.	Forced exhalation, all discharges, and particles of skin or scabs.	Is peculiarly infectious. When smallpox occurs in connection with a school or with any of the children's homes, an endeavor should be made to have all persons over seven years vaccinated. Cases of modified smallpox — in vaccinated persons — may be, and often are, so slight as to escape detection. Fact of existence of disease may be concealed. Mild or modified smallpox as infectious as severe type.	18 days to 4 weeks	Till all scabs have disappeared



Curves showing prevalence in Berkeley of Typhoid Fever, Diphtheria, Whooping Cough and Scarlet Fever, From 1906 to 1910, Inclusive.



Occurrence of Chicken Pox, Mumps, and Measles in Berkeley from 1906 to 1910. Schools ought to know the exact status of their contagious diseases at all times.



(1)—Curve indicating average seasonal occurrence of all Children's diseases in the Berkeley Schools for the years 1906-1910. Note that the curve reaches its height in March.

[1]The charts here given were prepared under my direction by Mr. Ivan C. Hall.

Special Contagious Diseases.[1]

Contagious Eye Diseases.

Attention has been called to the fact that children of school age are especially susceptible to general contagious diseases, but this is also true of diseases affecting the eyes. The early recognition of these eye

The Common Faucet When Inverted Makes a Great Improvement on the Common Drinking Cup and Prevents Contagion

troubles is of very great importance, not only to the child afflicted but also to his intimate associates.

As a rule a teacher is justified in excluding any child or at least insisting upon a certificate from a physician whenever such a child is found with evidence of dis-

[1]In the preparation of this chapter the author was materially aided by Dr. Geo. E. Tucker.

charging eyes, gluing of the eyelids or reddening of their inner surfaces, accompanied with any marked sensitiveness to light. To assist the teacher, parent, or any one else who has not had the medical experience, to distinguish the different contagious diseases of the eye, the following brief description of their essential characteristics will prove useful.

(A).—Pink Eye—(Acute Catarrhal Conjunctivitis).

This disease is of frequent occurrence among children and spreads in a school rapidly. It is commonly carried by means of the common wash basin or towel, borrowed handkerchiefs and the like. The child complains of smarting eyes, sensitiveness to light and a sensation as though sand were in the eyes. The eye lids stick together at night and there is often some visible discharge in the corners of the eyes between the lids. The small blood vessels in the white part of the eyes (sclera) and of the lining of the lids (conjunctiva) are very prominent. This results in very noticeable *reddening* of the eyes.

The disorder usually lasts from ten to fourteen days, but it may persist a much longer time. The trouble is easily cured if attention is received at once.

(B).—Gonorrhoeal Conjunctivitis.

This serious disease of the eyes is often found in newborn children, but it may also occur in children of any age or in adults. It is caused by the germ of *Gonorrhoea.*

Indications of this eye disease.

1. One or both eyes may be affected.
2. There is an intense inflammation of the eye-lids.

3. There is a profuse, thick *purulent* discharge.
4. The lids are red and swollen.
5. There is usually intense pain.
6. There is marked aversion to light.
7. Tears flow profusely.

This form of eye disease is most serious in its consequences, often causing *blindness.* It is highly contagious. For these reasons it ought to be recognized early and receive immediate and skillful treatment.

The disease usually lasts from four to six weeks, but sometimes very much longer.

Children with this eye disease must be kept carefully away from other children and every precaution used to prevent its spread by means of towels, handkerchiefs, wash-basins, the fingers and the like.

(C).—Diphtheretic Conjunctivitis.

This disease is due to the same germ which produces diphtheria in the throat or nose. It is very dangerous, but fortunately rather infrequent. The danger of contagion is very great, and therefore its early recognition is of the utmost importance in order to treat it properly and prevent its spread. The essential characteristics of this complaint are:

1. Severe pain in the eyes.
2. Eye-lids tense and dark colored.
3. Discharge at first thin and scanty, later thick and purulent.
4. A thick, tenacious, greyish *membrane* forms upon the inner surface of the eye-lids which is very difficult to remove.

The disease demands the same treatment as diph-

theria of the throat, and the period of exclusion and quarantine is of great importance.

(D).—Trachoma.

This is the most serious disease of the eyes known. It is highly destructive and extremely likely to produce blindness. Trachoma is prevalent in certain foreign countries, especially in the Orient, and the United States has taken extreme precautions to prevent its introduction into this country. In California, trachoma is most frequently found among Indians and Mexicans, and sometimes among the Japanese. In the large cities of the East and middle West, the disease often occurs among the children of other nationalities, largely in the slums or poorer districts.

Those suffering from the disease must be immediately *isolated* and kept so until the disease has been cured. The principal characteristics of trachoma are:

1. Inflammation is not very intense, but there is considerable swelling of the lids, an aversion to light and flowing of tears.

2. The outer surface of the eye-ball becomes roughened.

3. The inner surface of the eye-lids becomes covered with small granules, not unlike boiled sago grains in appearance, and this produces what is called *granular eye-lids.*

The disease is extremely contagious through the discharge from the eyes. Towels, basins, handkerchiefs, etc., are the chief means of conveyance, but uncleanly habits, unhygienic surroundings, poor food, poverty, and the like, favor its development and spread. Strict

quarantine against this malady must be established and continued until all signs of discharge have ceased.

(E).—Spring Catarrh.

This eye disease is only mildly contagious. It occurs most often during the warm weather of spring. The chief symptoms are:

1. Persistent itching.
2. Pain slight or absent.
3. Sensation of sand in the eyes.

This is not a disease of very much importance, but is mentioned because it might be confused with the symptoms of much more serious diseases.

Conclusions.

1. All contagious eye diseases must be recognized early.
2. Removal from school of children with such diseases is necessary.
3. Great care must be exercised to prevent contagion through the use of

(a). The common towel.
(b). The common basin.
(c). Handkerchiefs.
(d). Dirty fingers.
(e). Bed-clothing.
(f). Public bathing suits and possibly swimming tanks.

(II.) Contagious Diseases of the Skin.[1]

Scabies—The Itch. A contagious skin disease, due to an animal parasite which burrows in the skin, causing intense itching and scratching. The disease usually begins upon the hands and arms, spreading over the whole body, but does not affect the face and scalp. Between the fingers, on the front of the wrist, at the bend of the elbows and near the arm pits are favorite locations for the disease; but in persons of cleanly habits the disease may not show at all upon the hands, and its real nature is determined only after a most thorough and careful examination. There is a great variation in the extent and severity of this disease, lack of personal care and cleanliness always favoring its development. Scratching soon brings about an infection of the skin with some of the pus-producing germs, and the disease is then accompanied by impetigo, or a pus infection of the skin.

At the present time itch is very common and widespread, and because of the great variation in its severity, mild cases have been mistaken for hives, eczema, etc., the real condition not being recognized, and the disease spreads in consequence. All children who are scratching or have an irritation upon the skin should be examined for scabies.

It is very important that all infected members of a family be treated till cured, else the disease is passed back and forth from one to another. It is also important that all underclothing, bedding, towels, etc., things that come in contact with the body, be *boiled*

[1]With acknowledgments to a pamphlet on Medical Inspection by the Massachusetts Board of Education.

when washed. All cases of scabies should be excluded from school until cured.

Pediculi Capitis—Head Lice. An extremely common accident among children, either from wearing each others' hats and caps, or hanging them on each others' pegs, or from combs and brushes. No person should be blamed for *having* lice—only for *keeping* them.

The irritation caused by vermin in the scalp leads to scratching, which in turn causes an inflammation of the skin of the neck and scalp. The skin then easily becomes infected with some of the pus-producing germs, and large or small scabs and crusts are formed with the dried matter and blood. Along with this condition the glands back of the ears and in the neck become swollen, and may be very painful and tender.

The condition of pediculosis is most easily detected by looking for the eggs (nits), which are always stuck onto the hair, and are not readily brushed off. The condition is best treated by killing the living parasites with crude petroleum, and then getting rid of the nits. With boys, this is easy—a close hair cut is all that is needed; with girls, by using a fine-toothed comb wet in alcohol or vinegar, which dissolves the attachment of the eggs to the hair. All combs and brushes must be carefully cleansed.

Children with pediculosis should be excluded from school until their heads are clean. In Massachusetts since 1906, parents who neglect or refuse to care for their children in this respect may be prosecuted under the compulsory attendance law.

Ringworm. A vegetable parasitic disease of the skin and scalp. When it occurs upon the skin, it yields readily to treatment; but upon the scalp it is extremely chronic. Ringworm of the skin usually appears on the face, hands or arms, rarely upon the body—in varying sized more or less perfect circles. One or more, usually not widely separated, may be present at the same time. All ringed eruptions upon the skin should be examined for ringworm.

When the disease attacks the scalp, the hairs fall or break off near the scalp, leaving dime to dollar sized areas nearly bald. The scalp in these areas is usually dry and somewhat scaly, but may be swollen and crusted. The disease spreads at the circumference of the area, and new areas arise from scratching, etc.

Another disease, somewhat like ringworm of the scalp, is known as favus—a disease much more common in Europe than America. In this disease quite abundant crusts of a yellowish color are present where the process is active. The roots of the hairs are killed, so that the loss of hair from this disease is permanent, a scar remaining when the condition is cured.

Care must be taken to see that all combs and brushes are thoroughly cleansed, and to prevent children wearing each others' hats, caps, etc. Children with ringworm should not be allowed to attend school.

Impetigo. A disease characterized by few or many large or small flat or elevated pustules or festers upon the skin. The condition is often secondary to irritation or itching diseases of the skin (hives, lice, itch), and scratching starts up a pus infection.

The disease most often appears upon the face, neck and hands; less often upon the body and scalp. The size of the spots varies very much, and they often run together to form on the face large superficial sores, covered with thick, dirty, yellowish or brown crusts. The disease is contagious, and often spread by towels and things handled. Children having impetigo should not be allowed to attend school until all sores are healed and the skin is smooth.

Sanitation of Schools.

The subject of School Sanitation is far too comprehensive to treat at all completely in a book of the scope of this one; moreover, there already exists a number of excellent works on this subject which are accessible for teachers. For this reason only some general features of School Sanitation will be presented and more especially those which ought to come rather directly under the observation and control of the teacher than of the sanitary officer. The whole subject from the teacher's point of view may be profitably presented in the form of a "Sanitary Survey." Such a survey ought to be intelligently undertaken by every conscientious and efficient teacher in a public school. The questions under I (A) should be answered by teachers, the remainder by the Principal.

Sanitary Survey of a School.[1]

I. BUILDING.

A. School Room.	Yes	No
1. Is damp sweeping practiced?		
2. Is a moist cloth used for wiping up dust?		
3. Has the feather duster been abolished?		
4. Is any disinfectant used upon the floors?		
5. Are the desks cleaned with a disinfectant?		
6. Are the school books disinfected when necessary?		
7. Is the **common** use of articles which might carry infection avoided?		

[1] Use a check to answer the questions.

		Yes	No
8.	Has a list of such articles been made up?		
9.	If a "Plenum" or other system of artificial ventilation is used is it in good working order?		
10.	Are some of the windows always thrown open if the motor is not in operation?		
11.	If an artificial system is not used are some of the windows always kept open both from the top and the bottom?		
12.	Are ventilation boards fitted in under the lower sash?		
13.	Are all the windows thrown open at recess?		
14.	Have desks been re-dressed within two years?		
15.	If a stove is used in the room does it have a "jacket" around it and is there special arrangement for ingress and discharge of the air from the room?		
16.	If a furnace is used does the air-box connect directly with the outer air, and is outer opening kept free from dirt, leaves, snow, etc.?		
17.	Is some arrangement made to keep the air of the room sufficiently moist?		
18.	Is the fresh air inlet removed from toilets or other sources of contamination?		
19.	Is the room free from unpleasant odors at all times?		
20.	Are dustless crayons used?		
21.	Are green or brown flat finish boards used instead of glossy black?		
22.	Are erasers cleaned thoroughly every day out of doors?		
23.	Are the floors oiled or otherwise treated to prevent dust rising from them?		
24.	Is the room temperature kept even?		
25.	Is is kept under 70 degrees and over 60 degrees?		

	Yes	No
26. Do the windows have an area equal at least to one-fifth the floor area?		
27. Are the desks so placed as never to face direct sunlight?		
28. Is the room evenly lighted?		
29. Are **dark** window shades avoided?		
30. Are white shades avoided?		
31. Are yellow or linen colored shades used?		
32. Is the tinting of the walls light enough?		
33. Are neutral colors used?		
34. Is the ceiling lighter than the walls?		
35. Is over decoration avoided?		
36. Are the seats adjustable?		
37. Are the desks adjustable?		
38. Are they adjusted?		
39. Are wooden footstools provided where the seats cannot be adjusted?		
40. Is a light, dry, clean, ventilated room provided for clothing?		
41. Is over-crowding of pupils avoided?		
42. Are deaf pupils seated near the front?		
43. Are pupils with defective vision seated near the front?		
44. Are pupils with skin diseases excluded?		

	Yes	No
45. Are pupils with lice excluded?		
46. Are contagious diseases recognized early?		
47. Is strict exclusion practiced in contagious diseases?		
48. Are certificates from physicians required for re-admission?		
49. Is successful vaccination required?		
50. Are ordinary physical defects looked for and recognized easily?		
51. Are parents notified of the presence of defects?		
52. Are mentally defective pupils excluded?		
53. Are children with fits excluded?		
54. Are children with St. Vitus Dance excluded?		
55. Is there medical supervision of pupils?		
56. Is there medical inspection of buildings?		
57. Are the windows screened?		
B. Halls.		
1. Are the halls clean?		
2. Are floors properly prepared to keep them free from dust?		
3. Are halls well lighted?		
4. Are they well heated?		
5. Is liquid soap provided in hall wash basins?		

	Yes	No
6. Are sanitary drinking faucets or fountains provided?		
7. Has the roller towel been abolished?		
8. Has the common drinking cup been abolished?		
9. Are the halls well ventilated?		
10. Are exits plentiful and unobstructed?		
11. Are stairs wide and straight?		
12. Are the halls free from obstructions?		
C. The Basement.		
1. Are the floors clean and dry?		
2. Are they of cement?		
3. Are wash basins and sinks clean?		
4. Are individual towels provided?		
5. Are there any shower baths?		
6. Are toilets clean and well ventilated?		
7. Is the plumbing modern?		
8. Is the air wholesome?		
9. Are toilets well shut off from air intakes?		
10. Are sanitary faucets or fountains provided?		
11. Is the ventilation and heating apparatus in order?		

	Yes	No
II. THE GROUNDS.		
1. Are the play-grounds large and adequate for the number of pupils?		
2. Are they well drained, dry and even?		
3. Is there any play-ground supervision?		
4. Is play apparatus provided?		
5. Are some open air rooms provided for play, rest, lunch, protection from weather, and for recitations?		
6. Are the grounds well separated from undesirable neighbors?		
III. GENERAL SANITATION.		
1. Is a lunch room provided for teachers?		
2. Is one provided for pupils?		
3. Do the lunch rooms have tables?		
4. May a hot lunch be obtained?		
5. Is there a pleasant rest room for teachers and pupils?		
6. Is there an "emergency" outfit provided?		
7. Is instruction given on how to use such an outfit?		
8. Is **practical** hygiene taught?		
9. Is individual cleanliness insisted upon?		
10. Have the teachers been taught how to detect ordinary physical defects?		
11. Is practical dental hygiene taught by actual observation of the teeth?		

	Yes	No
12. Is there any personal inspection of pupils?		
13. Is school credit given for neatness and cleanliness?		
14. Are older pupils taught to make simple sanitary surveys of what they see at stores, shops, homes, parks, dairies, on the streets, etc?		
15. Is any inspection ever made of pupils' lunches?		
16. Are pupils encouraged to inspect themselves and their own environment to detect errors?		
IV. THE ENVIRONMENT OF THE SCHOOL.		
1. Is the ground well drained?		
2. Are tin cans and other receptacles in which rain water might collect kept picked up?		
3. Are other breeding places of mosquitos destroyed?		
4. Is garbage of all kinds properly destroyed?		
5. Is manure and other refuse hauled away as fast as it collects?		
6. Are family garbage cans kept covered?		
7. Is it thoroughly understood at your school that all refuse of the above sort furnishes breeding places for flies?		
8. Is the air in the neighborhood of the school clean and free from an excess of gases, dust and smoke?		
9. Is your drinking water from a safe source?		
10. Does your school understand just how a school drinking water supply may become infected with sewage?		
11. Are you relatively free from flies?		
12. Are vacant lots kept clean?		

CHAPTER V.

NERVOUS DISORDERS OF CHILDREN.

Nervous disorders in school children are no doubt largely of the *functional* sort but nevertheless they are of the utmost importance and of relatively frequent occurrence. Other and more serious nervous disorders are not very common and yet are to be found to some extent in nearly every large school.

A wise, sympathetic understanding of children and their ways is a rather rare quality both among parents and teachers, and it is precisely this lack of intuition in dealing with children which so often results disastrously for the child. Children are mostly all alike in one respect and that is that they are *so different.*

These differences are often so subtle in character that many of them are not recognized at all by teacher or parent, yet it is the clear recognition of such differences and the adaptation of educational and corrective methods to them which will result in success or failure for the pupil.

Nervous, irritable children in many cases have nervous, irritable fathers or mothers. Often it is quite hopeless to attempt to correct these conditions in children unless the unfavorable home environment can be changed or at least modified. Parents, teachers, and even physicians dealing constantly with children have in the past usually paid too little attention to *child*

nature. They have all very generally interpreted children's ways by the standards of grown-ups.

"It is difficult to understand," says Dr. Leonard G. Guthrie, "why a subject so important to the welfare of the community as the study of children should have been so long neglected in this country (England).

"Perhaps the public as well as the medical profession are to blame. For from time immemorial the upbringing of children has been regarded from an economical rather than a medical point of view. Many an elaborate treatise on methods of training children to be healthy, virtuous and brave has seen the light, but has emanated from moral educationalists and not from physicians. In fact, medical men were not supposed to interfere in matters considered to be outside their province. If children were ill or ailing the doctor was called upon to prescribe for their diseases, but advice on their management in general was neither sought nor welcomed.

"He was not asked to see a child because it was wayward, but because it was wasting, not because it was dainty, capricious in appetite, refusing food considered good for it, and craving for all that is unwholesome, but because it had pain in its stomach. Advice was not asked for peevish, passionate children, nor for those who were afraid of the dark, and unnaturally timid, absent-minded, or brooding and morose, jealous, spiteful, or cruel, nor for mischievous, untruthful, dishonest, or immoral children. All such defects were regarded as moral rather than morbid, and were treated as such. It was long before it was recognized that

a child might be dull and stupid in consequence of defects of sight or hearing."

It is still much the same in our schools today. Schools are largely without medical supervision and the various degrees of peculiarities and so-called misbehavior among school children are consequently regarded on the part of teachers from the moral and educational rather than the *physical* point of view. The nervous disorders ordinarily met in school children are the following:

1. Chorea, or St. Vitus Dance.
2. Habit Spasms.
3. Neurasthenia, or Nervous Exhaustion.
4. Epilepsy.
5. Hysteria (not common).
6. Stammering.
7. Migraine, or Sick Headache.
8. Sex Disturbances.

Chorea.

It is most important to recognize chorea or St. Vitus Dance early. As a matter of fact, this disorder is rarely recognized until it is well advanced. Any child should be suspected of developing chorea, who has the following habits:

1. Restless.
2. Purposeless motions.
3. Inability to hold pencils, books, knife, fork, etc., securely.
4. Falling down easily and frequently.

Parents, teachers, and some physicians often fail to recognize chorea until the spasmodic symptoms occur. These include muscular spasm of various parts of the body, such as contortions of the face, jerking movements of the head, shoulders, arms and legs.

It is most important to recognize Chorea early as it is often, if not always, closely associated with *rheumatism*, and in such cases the *heart* is very frequently affected.

Children with developing chorea are highly excitable and it is therefore most unfortunate that they are so often misunderstood, and perhaps scolded and punished for misbehavior, when in reality they require the most patient and kind sort of treatment.

Children with this disorder ought to be removed from school both for their own good and for the good of other pupils, some of whom are very likely to *imitate* their grimaces and other habits until it becomes a fixed habit in themselves. Children with this nervous affection require long rest, quiet life and the most careful medical treatment.

Habit Spasms.

Many nervous children develop habit spasms, which are characterized by quick, involuntary, peculiar movements. They may be easily recognized by the following description by Dr. Guthrie:

"A series of lightning-like blinks or nods or sudden turns of the head aside. The eye-brows may be elevated or corrugated or the upper lids may be raised several times in quick succession as in a munching rabbit, or the nose may be wrinkled and the nostrils expanded or

contracted whilst half a dozen or more little ineffectual sniffs are produced, or a variety of grunts and queer guttural noises are heard.

The characteristic of all these simple *tics* is that they suddenly come and go, and each form will commonly give place to another. It is seldom that more than one trick or antic is present at a time."

In a more complicated form of habit spasm or tic the child will often perform the most astounding tricks.

"For instance, after spending some days or weeks in repeating apparent efforts to twist his mouth around his nose, the child will suddenly relinquish the attempt and take to elevating his chin and stretching his neck as though his collar were too tight or he will shrug his shoulders or writhe like an eel at short intervals; or, whilst walking will suddenly execute a twirl, a hop, skip or jump, or he will stamp heavily on the ground with one or both feet or strike his head or body vigorously with his fist.

"One child under observation would at half-minute intervals shut her eyes tightly, show her teeth in a disagreeable snarl, and protrude her tongue with vibration like a snake.

Children will often lament bitterly that they cannot overcome their "habits," and each time they acquire a new one they will mournfully announce the fact to their sorrowing next of kin. Sometimes they occur only when the child knows he is watched, in other cases, only when he believes himself unmolested."

The present writer recently observed at a family dinner a parent and four young children all victims of

tics or habit spasms in a mild degree. He remembers very well that the parent had these habit spasms as a school boy in a much more aggravated form and that several other members of his friend's family including his own father, three brothers and a sister, were all afflicted somewhat.

A patient of the writer's some years ago had acquired a peculiar form of *tic* which consisted in *swallowing wind* and then belching it forth with illy concealed but strenuous efforts to avoid detection. These strange, grotesque, subterranean sounds often disturbed the peace of mind of his immediate associates at social functions.

The importance of correcting such unfortunate habits during the impressionable period of youth will thus be seen to be most desirable.

Neurasthenia or Nerve Strain.

Nervous exhaustion or neurasthenia is not a disorder enjoyed exclusively by the idle rich. While common enough among this class of adults, it affects all classes of people and even children. Many such children have passed through nervous horrors during several years of their lives while their parents and teachers were quite unconscious of any condition existing more serious than "nervousness" or natural "perversity." Many neurasthenic children suffer torments yet are entirely unable to explain their situation to relatives or friends or even to appreciate in the least what is the matter with themselves. The writer has a friend who as a boy suffered in this way for at least five years in total

silence, and it was only as a young man that he finally unburdened himself to an older and sympathetic brother. This boy progressed normally enough through the first six grades of the public schools. Then at about the age of twelve, the beginning of puberty, he began to develop various signs of nervous exhaustion.

Auditory disturbances first afflicted him. Voices and other sounds seemed often to be hollow, muffled, monotonous, and far away. His own voice sounded the same to him. This condition was often present for days at a time and continued for several years with only slight intermissions. This distressing symptom was almost unbearable and the boy often thought he was losing his mind. In fact by the time he was fifteen years old he was quite fixed in that belief. Sleep was fitful, unrefreshing, and finally at thirteen years of age disturbed with erotic and exhausting dreams which the child could not in the least comprehend.

These sexual dreams* which in moderation are normal enough to every growing boy had never been explained to him and constantly preyed upon his sensitive conscience, and this unfortunately reacted in the worst possible manner causing more nervous instability during the day and increased frequency of the sex dreams at night. He was now more than ever convinced that he was losing his mind and the victim of some sort of evil for which in a dim sort of way he considered him-

*This matter is mentioned here because boys are seldom informed by their parents about such matters and because most of them are greatly alarmed about the occurrence of such dreams until they understand their nature. Sensible instruction about the age of puberty in such matters is absolutely essential to the peace of mind and even health of the average child.

self responsible. His habits, however, were most exemplary and he lived conscientiously to the last degree of his knowledge. He had indeed a morbid "New England conscience."

The child soon fell by the wayside in school. His studies became uninteresting and difficult for him. He lost a grade and this filled his cup of sorrow and humiliation to the brim. Self confidence began to wane, he took little interest in active sports, his health began to fail, he was anæmic, thin, and always tired. Ringing and buzzing sounds added their torments to his other troubles. He was almost constantly disturbed with an excessive flow of saliva and with an almost insane desire to keep swallowing it (a habit of spasm). He became weak, tired, full of indefinite pains, unhappy, apprehensive, miserable. Yet despite all of these afflictions so heavily laid upon his youthful shoulders, he managed to present a fair front to his associates, family and teachers. He did not attempt to avoid company and seek solitude; he took his part as far as he could in boys' games tho' never succeeding very well with them. He was regarded as a delicate, sensitive boy, but not as morose, or melancholy, or the victim of any very unusual troubles. He belonged to the class of neurasthenic children called the "Restrained Emotional Type."

In this type, as Dr. Guthrie remarks, emotions are very strongly felt, but the powers of control are equally strong. They are (usually) solitary in habit, introspective, prone to self analysis, imaginative, with morbid love of horrors, and equally morbid dread of them.

They may harbor various kinds of *fears* and sometimes develop abnormally conscientious scruples of moral and religious nature.

This disposition, with its characteristic suppression of outward display of emotions is as exhausting as that of the other type (the unrestrained emotional type) in which emotional excess is obvious, and is associated with many similar complaints.

In the case of the boy described it was not until increasing years had brought him to the point of seeking advice that his symptoms finally cleared up. Fortunately for him he possessed a father who while entirely unconscious of his boy's real sorrows and troubles, yet possessed a wholesome kind of insight and common sense which led him to keep the child out of doors as much as possible. He removed him from school, employed him at light labor part of the time to occupy his mind and aid him in his physical development, furnished him with opportunities for horseback riding, rowing, sailing, camp life, and some travel. Except for this fortunate help from an unusually intelligent and kind though medically uninformed parent, this boy might easily have passed into a mental and physical decline ending very likely in tuberculosis or permanent melancholia. As it was he entirely recovered at about eighteen years of age.

Now the case just described in considerable detail may seem to the reader rather unusual, yet with minor differences it is a certainty that a very considerable number of the boys and girls in our schools are victims of such unhappy disorders caused by nervous exhaus-

tion. Many pupils like the one just described acquire an amount of self control and reserve which is quite out of proportion to the burdens they bear, and they consequently successfully hide from their associates the real troubles through which they are passing.

Nervous children need the utmost care both at home and at school. They need a firm but sympathetic hand to guide them. Someone must get their confidence and encourage the unburdening of the little mind so clouded with new and strange thoughts and sensations which the child so little comprehends and so greatly fears.

Months or years of untold, unnecessary suffering can in this way be prevented, and timid, suffering, unhappy children led into the normal, happy, wholesome life which is the birthright of every child.[1]

Epilepsy.

In this disorder there is loss of consciousness and there may or may not be convulsions. Children who show signs of marked inattention, forgetfulness, dreaminess, great irritability and uncontrolled passions, ought to be kept under observation with the possibility of developing epilepsy in view. Children with early symptoms of epilepsy are also likely to be subject to headaches, disturbed sleep, night terrors and spasms.

Sometimes children have an attack of epilepsy which very much resembles *fainting*. They will grow pale,

[1]It is important to remember that Neurasthenia, better called Nerve Strain, nearly always has a perfectly definite cause which ought to be discovered and corrected as early as possible, and that a great number of factors must be considered in determining the cause in different cases and various temperaments.

become dazed, stop talking, stand or sit perfectly still, and lose consciousness for a moment, though the last symptom may not be observed and the child may be quite oblivious of his condition in this respect.

In more serious cases the child has a "fit" as it is ordinarily called. He falls down in a spasm, with frothing at the mouth. Following the attack a deep sleep usually comes upon him. Sometimes he will have no recollection of the attack.

Nearly every large school that I have examined has had at least one epileptic pupil in it. These cases ought to be recognized by the teacher, and the pupil promptly removed from school. Epileptics have no place in our public school system both for their own sake and the sake of other children who are terrified at the sight of their fits. Sooner or later chronic epilepsy is likely to result in mental deficiency.

Cases of epilepsy in which the attacks are infrequent and do not occur at school often produce results which are attributed to pure perversity and maliciousness. I have lately seen a boy who displays at school, as the only sign of this disease, general insubordination and slow progress in the school room, and uncontrolled fits of anger with stone throwing and fighting on the playground. Considerable mental deterioration has already occurred.

Such pupils are sometimes very dangerous companions for the other children. In their anger they are likely to seize any object without the least discrimination, a rock, a hatchet, a shovel, or the first thing which comes to hand, and hurl it at the innocent

but offending child. Special school homes ought to be provided for epileptics in every state.[1]

Hysteria.

This disorder except in very mild forms is not found very commonly among school children. So-called hysterical manifestations, such as undue weeping, laughing, feigned illness, and the like, are not hysteria at all, but indications of a high strung, uncontrolled neurotic temperament.

General Nervous Instability.

In every large group of children there can always be discovered a considerable number who, while free from any definite nervous disease, yet deviate to a marked degree from the state of the normal child. Such children are restless, inordinately active, busy to no very definite purpose; their emotional natures are often unduly developed and under very poor control. Laughter and tears are always near the surface. Affection, anger, sorrow and joy are not very well differentiated. They are inclined to selfishness, fond of attracting attention, quick to give offense, but quicker to resent it in others. They are usually bright and affectionate, but irritable, passionate and emotionally uncontrolled. Dr. Francis Warner says of this type—"They are the children who are delicate without having any disease; who are rarely laid up with any definite illness, but are not strong; they cannot walk far

[1]Some of the worst crimes on record have been committed by Epileptics. In the criminal code of Ancient Rome the possibility of Epilepsy as a factor in crime received important consideration.

without getting tired; they are capricious in appetite, yet sometimes ravenous, but remaining stationary or increasing slowly in weight.[1]"

At home children of this type are usually very badly disciplined and indeed such children often furnish a pretty fair index of the character of their parent or parents. Such parents use little discretion in matters of discipline. They cannot bear to see the child cry. Since the child never meets with resistance, it wishes to possess everything that it sees. It wants every whim and caprice satisfied. It knows its strength; it knows what its tears will accomplish, and as a perfect tyrant it abuses its power to desire everything and to do everything which it should not do. In the end this sort of home training, or rather the lack of it, develops the typically nervous, unstable, tyrannical child. He not only becomes a source of annoyance to others, but defeats his own happiness for he never learns the habit of self control. As an adult this type furnishes a large proportion of those who go about in the search for *unearned happiness*, a happiness which they, of course, never secure.

Many *neurasthenics* among adults appear to have passed through a childhood of the sort just described, and indeed their neurasthenia has often resulted directly from their faulty early methods of training.

Most "nervous children" need definite, rigid home discipline, and in many instances such training might will begin with the parent. "Such children should be taught to endure pain with some degree of self control.

[1]The Study of Children (Warner).

to respect the rights of others, to obey just commands, to acquire some degree of composure, to live regular lives, to be unselfish and to love the good, the true and the just. This constitutes a strong point in the battle against the conditions which threaten nervous stability. Love of fellow-man, unselfishness, and a feeling for the welfare of others, a strongly developed feeling of duty—these qualifications fortify one most surely against that *egotism* which leads to nervousness. Particularly high in these qualities is the love of truth. He who is true to himself and others is rarely overtaken with a disorder whose striking characteristics are "exaggeration and dissatisfaction." [1]

One of the most difficult problems presented for solution in the physical study of school children, is how best to correct the faults which begin at home. After all, it is here that the most essential parts of a child's education should be acquired, and no school has done its full duty to the child which makes no attempt to carry education when necessary directly into the home. To illustrate how such home education may be accomplished, some cases from my own experience are related here.

Irritability and nervousness among children appear to be constantly increasing, and this is true whether we consider the children of the city or the country; the children of this country or of other highly civilized, and therefore complexly organized countries. One of the penalties of life in highly developed society

[1] Dr. I. A. Abt, in an address entitled, "Nervous Children," reprinted from the Lancet-Clinic.

is this increased tendency toward nervous instability. For this state of affairs parents are to a considerable extent to blame, for the habit of nervous instability is largely acquired in childhood. The child has the right of protection against the constantly increasing wear and tear of complex social conditions, and the right of proper education to enable him to cope with his increasingly difficult environment.

Heredity, pre-disposition, and environment determine the temperamental characteristics of children, and of these *environment* is perhaps the most important factor. Many a child with a faulty heredity or distinctly nervous pre-disposition, has developed into a normal life through the influence of a favorable environment. Environment has much to do in deciding the character and nervous stability of the child. It acts every hour of the day, tending to form the habits, lines of action, and modes of thought. "Parents control the bodies and minds, hearts and souls of their children, not only through hereditary traits handed down from their ancestors, but also by what they themselves do and think. Example and imitation guide the child in thought and action."[1]

A bad school environment is capable of doing much harm to any child, but the best of school environments can do little to offset the constant and pernicious influence of an unwisely conducted home. To a very large extent character is formed in a child during his first five or six years of life, so that at the time he ordinarily begins school his nervous organization and

[1]Development of the Child, (Oppenheim).

therefore his habits are already pretty firmly established. It is too much to ask of the school that it *re-educate a* child whose first five or six years of life have run in wrong channels, or that it correct in a few hours each day the influence of the daily faulty habits of the home.

Teachers very soon learn to judge pretty accurately of the character of parents by the conduct of their

A School Providing Sheltered Passages for Play in Stormy Weather. Architectural Beauty and Utility Combined. Easily Adapted to Out-door Lessons.

children. It is a pity that some of the demerits charged to children in the schools cannot be trans-

ferred to the parents in the homes. If a child is to succeed at school his pleasures and amusements at home must be simple and wholesome. He cannot with impunity be forced or permitted to enter into the social dissipations of adults. The child at home must have regular hours of eating, sleeping, playing; his discipline must be even and just. "Training should be systematic and constant. It is a mistake to permit something today and forbid it tomorrow. One should not be strict today and tomorrow break all rules by being very lenient. There are few parents who are consistent about a child's training. Most are guided by their own caprice." Parents may be too strict, thus stifling all spontaneity in the child, or on the other hand too lenient so that the child never acquires any degree of self control. Children surrounded day after day by a home environment little, or not at all adapted to character formation furnish most of the "nervous" pupils of our schools.

CHAPTER VI

SOME GENERAL DISORDERS OF SCHOOL CHILDREN.

Aside from such disorders as those of the nose, throat, ear, eye, defective teeth, and the usual contagious diseases, many children are discovered in the schools who are suffering from more general physical troubles. Of these *nutritional* disturbances probably head the list. Many a pupil has successfully passed the regular physical examination in schools because no defects of the usual sort looked for have been noted. Nevertheless some of these very children are the ones who are most in need of careful physical attention.

The following description of such a child will indicate a common type seen in most schools. The pupil is pale, apathetic, thin, maintains a poor posture and often stoops badly. The chest is usually thin and contracted, and in some cases the lymphatic glands, especially those of the neck are enlarged. Nervousness is often pronounced. Such an appearance may be accounted for in a number of ways. First, it may mean that the individual is suffering from mal-nutrition due to a lack of a proper amount of food, or an improperly balanced ration. Second, it may mean that proper food is being used in a very improper manner. To the latter class belong the children who, because of poor teeth or for other reasons, *habit* being a prominent one,

fail to masticate their food thoroughly and consequently never adequately assimilate it.

In some instances the condition described results from the physical mal-adjustments accompanying the period of puberty. At this age (twelve to sixteen years) the muscles are often flabby and weak leading to stooping, a slouching gait and general awkwardness. The heart in some pupils of this class is in a very unstable condition and often shows signs of considerable enlargement (hypertrophy). When this is present there is usually some breathlessness on rather slight exertion, a disinclination for exercise or play and a rapid and sometimes irregular pulse. In these cases the physician often discovers *functional heart murmurs.* Organic disease of the heart is found in perhaps one per cent of most school children. It ought always to be detected in order that the correct advice may be given in regard to exercise and other habits of life.

Sometimes the type described indicates *incipient tuberculosis.* It is very probable that a test of such children by the "tuberculin method," would result in many positive reactions, which otherwise would remain undiscovered until the disease is well advanced.

Many children displaying low general vitality constantly sleep in illy ventilated bed-rooms and drink coffee or tea in large amounts. The correction of these two physical offenses alone has brought about good results in several of my own cases. (See Chapter VIII).

Occasionally the condition is due to extreme nervousness (the neurotic type of child), with irregular habits

of life of various sorts. In many it is caused by lack of outdoor life and sensible physical exercise. Such children never play vigorously and unfortunately are not educated in this respect in their school life. The public play grounds, with properly supervised play, usually work miracles for children of this type. Whatever may be the cause of poor physical development, its early recognition is one of the most important duties of the teacher, parent, physical director and school physician.

These are the types of children who fall by the wayside, who lose grades (the retarded pupils), who become discouraged and who consequently often lose self confidence.[1] To them the teacher owes her best efforts, but unfortunately she often gives them scant attention because they are not as "interesting" as the healthier and happier pupils.

Occasionally the condition described is due to internal parasites (worms) and attention to this alone often leads to excellent results. Such children sleep poorly, grind their teeth in their sleep, and often have "night terrors." Usually they are nervous, fretful and irritable.

Evil sexual habits in themselves do not ordinarily lead to general physical depletion, general opinion to the contrary notwithstanding. Many poorly developed children are greatly misjudged in this respect. The *moral* effects of such habits are far worse than the physical. The persistent sexual sinner among children is

[1]Dr. Luther Gulick is of the opinion that when a child of average sensitiveness loses two or more grades, he is usually ruined for life educationally.

usually a *neurotic* individual, and his sex habits form only one of a long chain of other abnormal habits. It rarely does much good to attempt to correct the sex evil alone, and success is only obtained when the whole daily order of life (mental and physical) is changed and is placed upon a healthy, normal basis.

Diseases of the Bones and Joints.[1]

All noticeable lameness, whether sudden or continued, may indicate serious joint trouble, or may be due to improper shoes. These cases, as well as curvatures of the spine, are indicated by habitual faulty postures at the desk or in walking, and should be referred for medical inspection.

Spinal curvature should be suspected when one shoulder is habitually raised or dropped, or when the child leans to the side, or shows persistent round shoulders.

Complaints of persistent "growing pains" or "rheumatism" may be the earliest signs of serious disease of the joints.

Diseased Lymphatic Glands.

The lymph glands in children are frequently diseased and enlarged, especially those of the neck. When enlarged they are commonly known as "Kernels." The fact that these glands act as *sentinels* in the body having the power to arrest or destroy bacteria which gain access to the circulation, makes any involvement of them of serious importance. It is only when they are quite overwhelmed by great numbers of bacteria that these sentinels are themselves broken down by the at-

[1]From "Medical Inspection," Mass. Board of Education.

tack of a bacterial enemy. Enlarged lymphatic glands therefore always indicate a diseased condition (an infection) which must not be ignored. Such enlarged glands occur in the acute contagious diseases of children. They are also very commonly affected when the teeth are badly decayed. The very close relation between diseased teeth, poor nutrition and enlargement of the lymph glands of the neck, is most noticeable in examining school children. Among the first 800 school children examined in the schools of Berkeley these three defects, viz. bad teeth, enlarged glands, and malnutrition headed the list.

This condition of the glands is also very commonly present with diseased tonsils and adenoids. The extent to which the involvement of the glands occurs depends upon the severity of the cause, whether from bad teeth, diseased tonsils, or other causes, and upon the natural *resisting power* of the individual. In general a child with considerable involvement of these glands has low powers of resistance, and indeed it may be said that this condition is an *index of a low physical state.* Really healthy children do not show any indication of enlarged lymph glands.

When the glands remain enlarged for a considerable period of time one must always consider the possibility of a *tuberculous condition.* Where this is present the glands are at first hard and elastic. Later they become tender and painful and the skin over and around them is red. At last the gland softens and breaks down with considerable discharge.

"Certain observers claim, and advance strong testi-

mony to prove, that when enlarged glands in children persist and finally lung tuberculosis occurs, the infection is conveyed from the glands to the lungs. Seventy or eighty per cent of enlarged cervical glands may be said to be tuberculous."

CHAPTER VII.

DEFECTS OF THE FEET.[1]

In a general way the public is now awakening to the importance of proper shoeing, and the medical profession is being made aware of the real significance of defective feet. It has been shown that while some feet present symptoms which point directly to flat foot, other defective feet may have no local manifestations; instead they produce remote symptoms which are usually associated with other and grave disorders. For example, defective feet which did not ache nor tire easily nor swell, nor in any way attract attention to themselves have been shown to be the cause of pain in the knees, in the thighs, in the hip-joints, of a whole category of backaches and a painful affection of the end of the spine. Some of these (notably the backaches) are symptoms of other disorders which when present, may demand operations. How important it is then that in observing these symptoms the possibility of defective feet as an indirect cause should be borne in mind. Because of the gravity of the results should such a condition be overlooked or mistaken, this subject cannot too often be given publicity. Particularly is this so since in the vast ma-

[1]For most of the material in this Chapter the author is indebted to Dr. Jas T. Watkins, orthopedic surgeon to the San Francisco Hospital and Polyclinic.

jority of instances defective feet are not congenital but acquired, and therefore preventable. It is believed that the following discussion will throw light upon the cause of this condition and indicate how it may be prevented.

In studying the human foot it should be regarded as a mechanical contrivance especially devised for weight bearing and progression in an upright individual in somewhat unstable equilibrium.

Not only are the feet of individuals unlike, but traces of distinct racial types may be noted; the negroid, flat and flexible; the Semetic, with the flat expanded forefoot of desert dwellers; and the short coupled, relatively high-arched foot of the Caucasian.

Among American school children are many whose feet, because of their ancestry, show a disposition to follow one or the other of these types. It is a matter of comment, though as yet unsupported by statistics, that a relatively large proportion of children of the second group suffer from defective feet which present symptoms—such as pain, weariness, stiffness, or swelling of the ankles.

To comprehend the factors to which are principally due the almost universally defective feet of school children, some slight understanding of anatomy and physiology of normal feet is essential. By normal feet are meant feet of children which have not been distorted nor cramped by wearing defective shoes.

As mechanical appliances of a well recognized type, it should be appreciated in what parts of the feet certain actions take place and what structures partici-

pate in the performing of these actions. Once this is done the physical environment which is essential to the complete performance of a foot's function will be appreciated. That is, the several features will be recognized which must be incorporated in a shoe if the latter is not to prove harmful. A comparison, feature by feature, of such a shoe with the kind of foot wear to which children are habituated from infancy will, it is believed, throw light upon the most patent cause of defective feet. To such a discussion a history of footgear, though interesting, is not essential. Suffice it that man would seem to have shown a disposition to decorate his feet and to modify his footgear to the prejudice of the former's usefulness as soon as he found that the unencumbered use of them was not indispensable to success in the struggle for existence.

Evidence in support of the view that physical defects acquired after birth are as a rule not hereditary is seen in the fact that despite the distortions to which its parents' feet have been subjected the average baby's feet are normal at birth.

Viewing such a foot as a whole it will be seen to represent in general a *longitudinal arch*, high and unstable at the inner side, low and well braced at the outer side; and a *traverse arch*, which in the forefoot exists only when raised, and disappears there the moment weight is put upon it.

The forefoot as it slopes gradually forward, expands and is made up of numerous small bones. Its function is manifestly that of balancer and shock

absorber. On the other hand the back part of the foot is made up of massive bones, few in number, which descend steeply. This part is manifestly adapted to bearing weight.

The comfort experienced by many shoe-wearing women when they adopt so-called high French heels is due to the fact that part of the muscular effort necessary to raise the heel from the floor is dispensed with and that the heel of the shoe is so devised as to bring it more directly beneath the arch of the foot, thereby diminishing the strain put upon the ligaments which hold the several bones of the foot together.

Up and down motions of the foot on the leg take place in the joint formed by the leg bones with the ankle bone. The range of motion in this joint varies with peoples and individuals. For example, it has been noted that dwellers in the Tyrol and Swiss Alps, who wear half shoes and stockings which do not in any way impede the motions of this joint, show very remarkable joint motion. Again the feet of young children show a much greater range of motion in this joint than the feet of adults. The conclusion is, therefore, inevitable that the relatively limited up and down motions in the ankle joints of the latter are to be attributed to the restrictions imposed by the "uppers" of high shoes upon growing and adult feet.

It will be recalled that during fast walking or running, toeing inward is marked and involuntary. Indeed it is not possible to walk fast nor run for more than a moment without toeing in. This is then the attitude of muscular strength and is known as *adduction.*

If the reader will place one hand palm downward upon the table and then without moving the base of the palm, crowd the fingers as far inward as possible with the other hand, it will be noted that the hand which was flat has become arched with the highest part of the arch at its inner border, and that the attitude assumed by the fingers is analogous to that assumed by the forefoot in turning in. This position is seen to shorten the foot and to raise the arch and keep it raised. Conversely turning out (the attitude of rest) lengthens the foot and lowers the arch. The objection to walking with the feet turned out in the usual way is thus seen.

In a properly constructed shoe for a normal foot the heel should be broad and low; instead of tapering to a point it should remain unchanged or even be slightly flanged, thereby increasing the firmness of its tread. The shoe should grasp the wearer's heel firmly. The shank should be flexible and very short. If the narrow shank is long it will bind the foot and prevent the side to side motions essential to turning the foot inward. The sole should have a straight inner edge and permit of the foot's assuming the in-turned or adducted position. In this position a line drawn through the middle of the heel will pass to the outer side of the little toe. It should have very little "spring" or rocker, because this, like a high heel, causes the toes to be bent upward. It should be flat from side to side and not convex downward as is customary in most factory-made shoes. The "upper" should be deeper and more roomy at the inner side over

the high inner arch than at the outer side. Half shoes (low shoes) are preferable to shoes with high uppers, because the latter restrict the up and down motions of the foot.

Finally, because feet vary as much as other physical characteristics, much care must be taken in selecting that combination of features which are peculiar to the individual. Whenever it is possible shoes should be made over individual lasts.

Resume on Flat-Foot.[1]

The particular defect of the feet known as "flat-foot" is the one of most interest to those whose business it is to observe school children. It results from a disproportion between the strength of the foot and the weight it has to bear. Excessive strains, general muscular weakness, or any condition which weakens the foot has a tendency to produce flat-foot. One of the most important factors among children is, perhaps, the use of improper foot-wear. Most shoes force the foot *outward* and in this position the weight from above has a tendency to break down the arch. The symptoms of most cases of flat-foot start at or about the time of puberty and one of the earliest of these is cramps in the calves of the legs. Later there is loss of the arch and of the concavity on the inner side of the foot. It is very important to remember that before much loss of the arch has occurred there may be a great deal of pain in the calf muscles, in the foot itself, and in the back.

[1]The Resume on Flat-foot is largely taken from an article by Dr. Edward H. Ochsner of Chicago.

The foot finally loses a good deal of its range of motion, especially the ability to turn inwards. The *outward* turn of the foot becomes prominent, and the ankles have a tendency to bend inwards. It is most important to teach children with flat-foot to walk properly. To this end they must learn to walk with the feet nearly *parallel*. Children with flat-foot or broken arch should receive treatment as early as possible in order to prevent serious results. Such treatment can ordinarily be given only by orthopedic surgeons who have made a specialty of physical defects of this character.

CHAPTER VIII.

POSTURE.[1]

Posture exerts a far greater influence upon health than is ordinarily recognized. We commonly value it for its aesthetic effect, but this is in fact of relatively little importance as compared with its influence upon health. Nor must we forget the effect of posture upon *character*. A well poised body gives to others the impression of a well balanced mind, while the constant habit of good carriage reacts to the advantage of the individual himself. To a great extent we can *be what we act*. We can, says Dr. Luther Gulick, assume the bodily positions and movements and manners and tones of voice that belong to the emotional state we desire. "Our muscles can be made to express the positive, the constructive, the joyful attitude * * * * We become the thing we act; and if we always act the best thing that we have within our power, we are on the road to actually becoming that thing."[2]

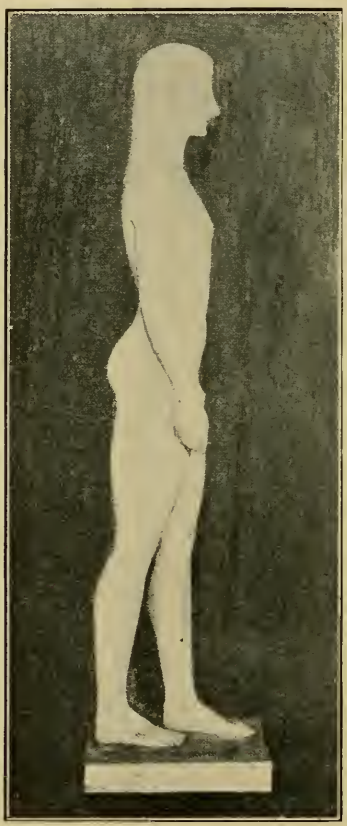
In the schools of Germany and some other European countries the cultivation of a good posture is considered a very essential part of a child's education.

[1]Without the aid of Dr. Joel E. Goldthwait's paper on "The Relation of Posture to Human Efficiency and the Influence of Poise upon the Support and Function of the Viscera," this chapter could not have been satisfactorily presented by the writer. Dr. Goldthwait's paper was read at a meeting of the Boston Medical Library in 1908.

[2]"Mind and Work," Dr. Luther H. Gulick.

For this reason few German students are seen who do not carry themselves well. In this country it is very different. The cultivation of a fine carriage is considered a luxury, an accomplishment, but not an essential factor in education. The other day I watched the children of a large school assemble in the halls preparatory to marching out for recess. In the long lines hardly a single child assumed an easy, graceful, healthful posture. Some stood on the outer side of one foot (one indication, by the way, of a weak arch), others stood with heads forward and shoulders stooped; some stood with abdomen forward and shoulders back; some with one shoulder much lower than the other (sometimes an indication of spinal curvature); they *slouched* and moved about restlessly in many uncouth ways. It occurred to me then that these children were not only lop-sided in bodies but were perhaps developing lop-sided minds as well.

We are largely what we act, and a slovenly mind is apt to go with a slovenly body. One rarely sees a successful business or professional man of very slovenly posture. The orderly habit of mind which brings success is usually associated with an orderly habit of body. Dr Gulick gives us one of the secrets of such success, a secret so simple that he who runs may read. "If you are walking along the street and wake up to the fact that you are carrying yourself poorly, take the mental attitude of standing straight, as well as the physical one. Look at the men you meet and imagine that each one of them owes you a dollar. Put even a suggestion of arrogance into your position. Hold your



Greek Statue of the Sixth Century Showing a Perfect Standing Posture.

head well back; this will not only give the impression to others that you possess the power that you want, but it will actually tend to bring the power to you.

Flat chest, flabby muscles, jelly-like abdomen do not make for what we call a strong personality. Keep the neck against the collar."

Now children cannot acquire this bodily habit of success too early. To be of much use it must become instinctive, automatic. The muscles of the child must do the right thing at the right time without his having to think about it. But muscles must be taught and taught early, if such useful automatic action is to ever be successfully acquired, for after all education as a whole depends for its success upon learning how to do most things without having to think. The thinking faculty must largely be reserved for purposes of *co-ordination*; it should be spared the petty details of purely mechanical functions.

But even more important than the mental effects of posture are the purely physical effects. No one has more thoroughly or beautifully explained this than Dr. Joel E. Goldthwait, of Harvard University. In speaking of the collection of casts from Greece in the period of 500-600 B. C. in the Museum of Fine Arts in Boston, Dr. Goldthwait says: "There is not a single cast or reproduction that did not show the body so poised that the greatest efficiency of the organism would be possible." Of one male figure in particular he says: "The head is erect and in such balance that all of the muscles must be in easy contraction, making possible any movement, forward, backward, sidewise or with any combination with the greatest ease and with the least possible waste of energy. The chest is high, allowing the fullest freedom of action of the

thoracic organs. The shoulders are erect, in which position all the muscles are in easy contraction, ready for *immediate function with the least effort.* The trunk is so balanced that no group of muscles or part is

St. Gauden's Statue of Lincoln Illustrating Posture

strained, but action with the minimum of waste is possible, while the visceral (internal organs of abdomen), support and function is maintained with the least effort. So also, of the legs, there is no strain,

but every part is ready for full duty with the least waste in either time or energy. The greatest amount of general fitness is suggested by the figure, and this applies not only to that which is physical, but to the spirit or the purpose of the individual. In every part, the body, the mind and spirit, the figure suggests readiness and efficiency * * * * * * * In modern times it is not difficult to find equally satisfactory types. Nothing can be finer than the St. Gauden's figure of Lincoln, which is quite remarkable in that even though the figure is depicted in repose, with one knee relaxed, the trunk is perfectly erect so that the poise of the head is free from strain and the visceral function, or support can in no way be disturbed."

The evil effect of incorrect posture upon the internal organs are rather easily explained. In the inclination of the body forward or the drooping position, which one is apt to assume when fatigued, the breast bone is depressed at the upper end. This results in decreasing the space in the chest from before backwards, and so interferes with the free action of the lungs and sometimes of the heart as well. In this drooping posture there is considerable "increase in the downward inclination of the ribs." This results in a *flattening* of the upper part of the chest under the collar bones at the sides and consequently in a restriction of lung space at this place. Tuberculosis frequently begins at just this point. The organs of the abdomen are affected by the drooping or *fatigue* posture even more than those of the chest. In general the effect is to *shorten* the abdominal cavity and *crowd the contents*

downward. This often results in serious disorders either of the abdominal organs or the organs within the pelvis. The latter condition explains many of the disturbances from which women especially are apt to suffer.

Children often assume bad postures in school, especially while reading, writing, or resting at their desks. To correct this as far as possible, the child's feet must reach the floor, the width of the seat must be great enough to come rather close to the knees, and it must have a slight backward slope.

The desk must be so arranged that the child may *face* it with arms and hands upon it. The desk must come as near the pupil as possible without touching him. This prevents leaning forward too far. "If this posture is taken, the head will be erect, the arms will offer a support, the chest will be easily filled, the shoulders will be on a level, the back will be straight, and the position can be maintained for some considerable time without fatigue."[1]

By maintaining correct posture one avoids a very considerable part of the struggle for existence which confronts those who have carelessly or ignorantly allowed their bodies to assume faulty postures. Correct posture places the individual in the position of greatest physical efficiency. This posture is assumed when "the body is held so that it is made as tall as is possible without raising onto the toes. In this position the head is erect, the shoulders are thrown back so that their center is back of the center of gravity, the chest

[1]The Physical Nature of the Child, (Rowe).

is high, the abdomen is flat, and the spinal curves are slightly convex backward in the middle part of the back and convex forward in the lower part."

Elaborate systems of gymnastics are neither enjoyable nor desirable for the average child or adult, nor are they in the least necessary for the acquisition of a correct posture. All that is required either for healthful exercises or learning good posture habits are simple exercises practiced daily until the muscles easily and naturally hold the framework of the body in the positions desired. In school the teacher must not only know how to teach correct postures, but ought to be herself a constant example of what she wishes to inculcate in the minds of her pupils, for no amount of teaching however good will ever offset a bad example.

ENVIRONMENT INFLUENCES A CHILD MORE THAN DOES HEREDITY.
(By Permission of the Glen Taylor Private School, Alameda, California)

PART II.

THE CHILD AND HIS ENVIRONMENT.

CHAPTER IX.

FOODS FOR CHILDREN.[1]

In considering the question of how best to feed school children, it must not be forgotten that the period of school life extends over a number of years, and that in the school house we invariably find children of different stages of growth and development, and children with very widely different needs. It would be impossible for any directions however lengthy, to properly or adequately cover the requirements of all children, even at the same stage of their lives, with their widely varying tastes and idiosynocrasies, and their special constitutional tendencies. No diet list however carefully chosen could be used with good results for all children of any one age—much less for children of all ages.

The only hope of a proper solution to this many-sided problem, lies in creating in the minds of those people who have the catering in charge, an intelligent understanding of the uses of the various foods and trusting the rest to their discrimination. Many rules of dietetics are only of service when applied by the person who has had experience with the particular child in question, and possesses a thorough understanding of its special needs. Only wide general principles are universally applicable.

The scientific principles which underlie the proper

[1]Prepared for this book by Mrs. Dr. Jaffa.

selection of foods are few and easily understood. Chemical analysis has shown us that all foods, no matter how simple or how complex they may appear, contain only four classes of materials. Each class has many subdivisions containing an infinite variety of chemical compounds. But nothing has been found that cannot be classified under these four heads. Two of these are mineral matter and water, which are not necessary to consider in our present discussion. That leaves us only two main classes of nutrients to understand and to deal with; the nitrogenous group and the non-nitrogenous.

The question is naturally asked, "Of what use is this classification? In what way does it help?" The answer is at once plain when we consider that these two classes have entirely distinct and separate offices to perform in the body. The protein or nitrogenous group builds tissues; the bones, muscles, nerves, internal organs, etc. It supplies material both for the building if new tissues, as in growth, and for the repair of the old. The non-nitrogenous group furnishes heat to keep the body warm and energy or power with which to perform our work. This material may be stored up in the body for future use in the form of fat, but can never be used to build real or deep tissues. Fat in the body is like coal in the basement, ready to be converted into heat and energy. Our need of it after we have accumulated enough fat to round out our frames is in direct proportion to the weather and to the amount of energy we expend in both voluntary and involuntary functions. The little girl who sits in a warm room and

reads and sews, does not need as much as her brother who plays ball in the cold winter air.

That brother is the best example of a healthy creature in need of plenty of nourishing food, that we could well find—especially if he is in his teens. There, is every kind of a call for food that could be found under normal conditions. Who else in the family is growing so quickly, who else lengthening out and widening every bone and tissue of the body? The baby of the family may be doing that, but she is not studying or exercising, neither is she under nerve strain. The father may be using his brain in his work and may be under nerve strain, but he is not growing and may not be exercising overly much. Rarely indeed do we find a human creature, whose demands for food materials are so many and so urgent as those of the boy in his teens.

If the problems involved in the proper feeding of a growing boy be solved *first*, the results may be modified for other children, up and down the line, according to their ages and conditions, and their individual needs. We have come to know a great deal about the food for the first period of rapid growth, that of infancy, since the chemical analysis of mothers' milk has furnished us with a perfect model upon which to base our selection of substitutes when the natural food fails us. But the second period that comes early in the "teens" is not yet so generally understood.

During these years of adolescence, when Nature is making every effort to develop and round out the perfect individual, she needs all the help we can give her. She can not build if we do not supply her with material,

but she can, and often does, build one part at the expense of another. It is a common thing to hear a mother say, with reference to a child, that he "outgrew his strength." Translated, that expression means that the child did not get, or was not able to use, sufficient food material to supply all the needs of the entire organism.

It is the second and last chance that Nature has, to remedy defects in the constitution, and she makes a desperate effort to accomplish it. The results of improper feeding at this time can not be easily remedied. It is often a case of "now or never," and the work that is not done in this second formative period of life may not be done at all. Weak spots in the building will always remain weak spots, and we should not run any risks at this time. Many of the nervous symptoms usually observed during the period of adolescence are not necessary or normal. The nerves suffer from insufficient and improper nourishment, as well as from other wrong and unhygienic conditions during the early "teens." (See Chapter V).

When the importance of proper nutrition is once fully realized, the first question asked is, "How can we supply it—what kind of food does the child need?" The answer is very plain. He needs *All Kinds,* and in sufficient quantities. He should be fed not only from the different classes of foods, but from the various subclasses, as well. Fortunately for us, most foods contain some nutrients from each. When we classify foods we place them according to the largest amount or importance of some ingredient that they contain, but

that does not mean that they do not contain any other. The following table illustrates this point. Some of our common foods are placed under the class to which they belong, while in parenthesis are indicated what important nutrients of the other class they contain. Very small amounts are not so indicated:

CLASSIFICATION OF FOODS.

I.

Nitrogenous Group

(Protein or Building Material)

1. Meats (also contains fat).
2. Milk (fat and sugar).
3. Eggs (fat).
4. Cheese (fat).
5. Fish.
6. Oysters.
7. Nuts (oil).
8. Beans (starch).
9. Peas (starch).

II.

Non- Nitrogenous Group.

(Heat and Energy Material)

1. Carbohydrates.

A

Starches

1. Cereals (also contains protein)
2. Bread (also contains protein)
3. Macaroni (also contains protein)
4. Rice (also contains protein)
5. Potatoes
6. Sweet Potatoes (also contains sugar)
7. Green Vegetables.
8. Fruits (also contains sugar)

B

Sugars

1. Various Sugars.
2. Syrups.
3. Honey.
4. Sweet Fruits.

2. Fats.

1. Meat Fat.
2. Fish Oil.
3. Butter.
4. Cream.
5. Vegetable Oil (olive, cotton seed, etc).

It is important also that we should not ignore the subdivisions. While the sugars, starches, and fats belong in one large class, and apparently perform the same office, they vary greatly in other ways. Starch must first be converted into sugar, in the digestive tract, before it is absorbed and used. Therefore, it would be much more difficult for the body to obtain all of its carbohydrate from starchy food, rather than from starch and sugar both. Again, fat is worth two and one-fourth times as much as either starch or sugar for producing energy. The Esquimaux and Laplanders realize this when they eat their tallow and blubber during the long and severe Arctic winters.

The boy's instincts, too, will lead him to choose the all-round diet that he needs, provided he has an opportunity for selection. He can not choose what is not there, and his instinct will rarely be strong enough to cause him to demand what he does not see. To limit his choice to a few articles is to tempt him to over use the one that appeals to him the most. To regulate his diet according to the taste or fads of the grown-ups is to hamper him most cruelly. It is not necessary to weigh or measure or count it out. It is only necessary to see that he is provided with some food materials from each important group.

Protein, or nitrogenous food, he needs, of course, in large quantities, to furnish the *building material* with which Nature is to develop the frame of the child into that of the man. It is not well for him to get it all from meat—that puts too much strain on the organs of elimination. The "meat substitutes" should be kept

in mind and provided for the non-meat meals. He should be given milk and eggs or nuts, cheese, beans, lentils, etc., and he will not crave meat as inordinately as most boys do. His need of building material will thus be partially satisfied but it should always be remembered that he requires more protein than an adult until he has his full growth.

The non-nitrogenous foods are in great demand as well, to furnish the body heat and the energy for all his work and his "sports," and to round out his frame. But he should not be expected or allowed to get all he needs of it from starchy foods. They are very bulky and would prove an unnecessary strain on the organs of digestion. Do not be afraid of sugar *as part of a* meal. Candy is an excellent dessert for active growing children—and nut candy—properly chewed is especially nutritious. Remember that Mother's milk contains five per cent of sugar and is the ideal food for the growing body of the infant. It contains protein, sugar and fat but *no starch.*

Fat is a most important element in the dietary. While its office in the body is the same as that of the other non-nitrogenous foods, its digestion is different, and it is worth more than twice as much in furnishing heat and energy. No child should be allowed to go without fat simply because meat fat or butter are distasteful or do not agree. One kind after the other should be tried—cream, ham or bacon fat, nut oils, vegetable or fish oils—until the right one is found. When fat is not tolerated with one kind of food, it often will be tolerated in a different combination.

Some *concentrated nourishment* should be used at each meal in connection with the more bulky foods, so that the proper amount may be taken without crowding the digestive apparatus. The sugars and fats are the most concentrated foods—and meat, cheese, eggs, etc., next on the list. This means that there is less water and waste material in them.

At first glance it may appear that no real directions have been given for the dietary of a growing child. "Feed him everything. He eats everything now." But perhaps a second and more careful glance will disclose errors. True, there is no one great radical change advocated; but it is the accumulation of all the *little things* that makes the real difference. Nature works slowly. In order to help her we, too, must work slowly and patiently with carefully thought-out meals, conscientiously persisted in for years, if we expect to see results. Some apparently *slight* change made in each meal three times a day for 365 days in the year would make a great difference in the end.

Suppose for instance, it were decided to add "growing material to the dinner" other than the meat. Suppose the meat soup were replaced occasionally by a bean or pea soup or by one of the various milk soups; and that on other days the potatoes were replaced by rice or macaroni and peas used more frequently than other vegetables; and that on others, the pie were replaced by custard or soft home made candy—would not that alone make considerable difference at the end of the year?

And if for breakfast, oatmeal were used instead of

wheat or wheat foods—breakfast cheese for those who do not eat meat or eggs, milk or cocoa instead of coffee—milk toast instead of dry toast, etc., would not the sum total of the year's breakfasts count?

The meal that usually requires the most radical reconstruction is the lunch. Between the children that rush home and swallow a hasty bite of unsuitable material and hasten back for fear of being late, or else to play with the other children, and those who carry a cold lunch composed of food that would not furnish very much nourishment, even if it were not difficult to digest—there remain probably, only a small percentage of children whose lunches are suited to their needs. This is a great drawback in many cases, for it is often the one meal where individual requirements can be most easily attended to. To slight one meal out of three is to slight a very large portion of the child's opportunities for nourishment.

The lunch can never be considered alone. It must of necessity depend largely upon what is given for the other meals of the day. It is really not a difficult task to make one meal complimentary to the others when the habit of mind is once established. Having acquired a permanent mental picture of the food groups, and having the special requirements of the child, it becomes an easy matter to arrange a lunch of nourishing materials not supplied by the other meals.

Does he eat heartily of meat at night and perhaps has some for breakfast? The lunch should contain "non-meat protein." Does he prefer the vegetables and dessert at dinner? Give him meat at noon. Do the

other members of the family object to oil or fat? See that the growing boy gets peanut butter or mayonnaise sandwiches, etc., for his lunch. Is his breakfast light? His lunch should then be very hearty. Is he tired at dinner time, and sleepy? His most nourishing meal should be at noon. Does he refuse eggs for breakfast? He may relish and digest them well for lunch, and thus it goes. It would be impossible to cover the ground of the various elements involved in the decision.

In general, the lunch, as well as *the other meals,* should be as simple as possible in order to supply the required nourishment. The work of handling the quantity and kind of food, needed to build up the physical frame, and keep the organism in good running order, is quite enough strain on the digestive organs, without hampering them with unnecessarily complicated or difficult dishes. As a rule, made dishes, fried food, "warmed overs," smoked and salted meats, thickened gravies, etc., should not often be given even to the healthy child, and *never* to one whose digestion is weak. Food that is difficult of digestion may often be handled perfectly on occasions, when frequent repetitions would cause disastrous results. It must never be forgotten, in this connection, that "what is one man's meat is another man's poison," and careful observation is the only sure guide.

The main points to keep in mind may be summarized as follows:

Be persistent in using foods from each group.

Be sure to use plenty of "growing material" without going to an extreme with meat.

In using meat substitutes remember:

(a).—That milk is the most valuable one to use if it agrees, and that skim milk is just as rich in growing materials as whole milk.

(b).—That eggs come next in order.

(c).—That nuts must be ground or *very well* chewed in order to be properly digested and assimilated.

(d).—That soup meat has *all the growing material* left in it, and none of the deleterious elements (uric acid-forming materials, etc., that are in the soup), and is a cheap and excellent food, and can be made into appetizing dishes for breakfast or lunch.

(e).—That oatmeal, macaroni, rice and gluten flour have more growing material than potatoes or white flour.

f).—That in using nuts, cheese and beans, the question of individual digestion must dictate the choice.

Do not forget that in pushing nourishment, some concentrated foods should always be used with the more bulky ones.

Fruits and vegetables have a hygienic and a medicinal value, but after this purpose is well served, they are expensive food materials.

In comparing the prices of the different foods, we should consider the amount of nourishment they contain as well as the price per pound.

Eating between meals should only be allowed where it is prompted by hunger and not by a desire for goodies. Only easily digested foods as crackers and fruit, etc., should be given at such times.

The nourishment should be fairly well distributed

among the three meals, and not crowded mainly into the dinner.

The weekly dietary should contain considerable variety, but the single meal, not too great a mixture.

Study the effects of combinations before discarding any food from the diet list.

Never crowd nourishment nor risk indigestible food on occasions of excitement or fatigue.

After indulgence in an unusually heavy or taxing meal see that the next one is unusually simple.

When protein is added to the dinner for the sake of the children, the "grown-ups" may eat less of the meat. The necessity for *careful mastication* is a lesson that children can not be taught too early.

When the "what's, the why's and the wherefore's" of feeding the growing boy in his teens, are well understood, it becomes an easy matter to cut down and modify his dietary to suit the cases of the younger or the older children, the fatter or the leaner, the more active or more sluggish, the thriving or the poorly nourished. It is only necessary to keep in mind what the foods do in the body, and the special needs of any normal child may be easily met. Those who are suffering from weakness or disease should be under the care and direction of a physician.

CHAPTER X.

HEALTH AT HOME IN RELATION TO SCHOOL HEALTH.

The school is often criticized for results which really originate in the home. It has become a common habit now-a-days to find fault with our school system in nearly every particular.

Some of this present day criticism is just, and is therefore accomplishing much good, for our schools are rather keen to give heed to fair complaints. But much of the complaint is merely destructive in nature and is often based upon misconceptions of actual existing conditions.

Our present school methods undoubtedly do produce many physical defects and contribute to others originating elsewhere, but the fault is just as often to be found in various abnormal home conditions, and in ignorant or careless physical neglect. School health and home health are interdependent, and an oversight of this plain fact often leads to many errors.

1. Not long ago I noticed a little girl of twelve years in one of the best Berkeley schools who appeared singularly nervous and queer. The usual physical examination revealed nothing of particular importance. Eyes, ears, nose, throat, teeth, heart, lungs, and the like, all seemed healthy enough. Yet that the child was far from normal in some respects was apparent in her

general appearance and nervous demeanor. A home visit from the school nurse revealed at once the nature of the difficulty.

The mother while by no means indigent considered that her circumstances were too straightened to justify her in purchasing milk for her child to drink. She therefore kept the coffee pot constantly on the stove and permitted the little girl to help herself as often as she wished. The result was that this child was drinking a *pot and a half of strong coffee daily.*

The mother thought that coffee was a *food* and a cheaper one than milk, so she ignorantly made use of it. The child's condition in school was thus easily and quickly explained.

A few simple explanations on the part of the school nurse soon set this mother right, and one less school child was from that moment a victim of the coffee habit.

2. In another school a boy of ten years was observed who appeared illy nourished, pale and apathetic. There again the physical examination revealed no defects of the usual sort, but the nurse's visit to the home explained the trouble. The boy slept in a very small bed-room opening out of the kitchen. In both the bed-room and kitchen the windows were kept carefully and conscientiously *closed* at night, and during the day the air was never wholesome. A simple lesson on the hygiene of ventilation given on the spot by the tactful nurse worked wonders. A few weeks of sleep in the same room with the windows thrown wide open at night produced a very different looking boy.

The little girl in the first case was *coffee poisoned*—the little boy in the second case was *air poisoned.*

These instances just related are by no means exceptional, but fair types of many such cases met by careful physical examiners in the schools.

Of over 500 children in the Berkeley Schools, in the grades from the third to eighth inclusive, it was discovered that 53 per cent use tea or coffee or both daily, and in this respect these schools are not exceptional. This habit deserves more serious consideration on the part of parents and teachers than is usually given to it. Disguise it as one may, this is a mild *drug habit* and while not necessarily of great importance in its effects upon healthy adults, it certainly has seriously bad effects upon children. It is high time to teach *temperance in all things* instead of unduly focussing attention almost exclusively upon tobacco and alcohol.

Many school children live in homes of more or less constant unstable nervous equilibrium. An irritable mother or father can hardly fail to produce an irritable child.

An irritable child at school rarely makes good progress, and is frequently scolded and punished by the teacher. The child who leaves home for school in a state of nervous excitement from any cause must not be blamed for capriciousness, irritability, or misbehavior in the school room. The influence of *environment* is greater than that of heredity.

The daily home environment very largely determines the child's conduct in school. Let the tactful teacher or nurse investigate the home conditions of her nerv-

ous, misbehaving children and she will nearly always discover the exciting cause of the child's actions.

Conditions of mal-nutrition are very frequently observed in school children. This condition is by no means always due to poverty at home. The fact is that relatively few families in this country are too poor to furnish their children with nutritious food in proper quantity. The common explanation is ignorance of what sort of food the child really requires for good health. Children are most often allowed to make their own selections of diet. The whim and the caprice of the child are too frequently encouraged. Children and adults can with very few exceptions eat what is placed before them when the food is intelligently selected and well prepared.

3. I recently noticed two children, brother and sister who had a singular pallor and appeared poorly nourished. Their work in school was of low grade. A visit to the home brought out the interesting information that the breakfast of preference with these children consisted of *pie*, *pickles* and *coffee*, and this preference was not infrequently indulged. It was with great difficulty that the mother (a fairly intelligent Norwegian) was persuaded that no child can thrive upon such an atrocious morning meal.

4. I once found a little boy of eight in the schools another city whose sluggish motions, pallor, and emaciation were apparent to any observer. A few direct questions elicited the information that his breakfast usually consisted of strong coffee and bread without

butter. For lunch he usually had some bread and butter; for supper some soup and bread. His parents were ignorant, shiftless, and poverty stricken. A wholesome lunch of good variety was provided for this boy and the parents instructed about the necessity for a *properly balanced* ration. The result was that the child soon grew strong and healthy in appearance and improved greatly in his daily school work.

5. It is not altogether uncommon to observe cases of absolute home neglect among school children. The following case will serve as an illustration. A boy in a second grade asked his teacher to excuse him from the usual physical exercises in school, which she promptly did. He said, "it hurts me to do those things." Upon examination I discovered a large *tubercular abscess in the groin.* This abscess was discharging and yet had never been dressed nor had it received any kind of attention. It was with difficulty that the parents were made to understand the seriousness of the condition. Proper surgical treatment cured the case in a few weeks.

6. Another boy in the same grade had a peculiar walk which the careful teacher had noticed. He was very delicate looking and had once *fainted* on his way to school. Investigation demonstrated that this child was suffering from *chronic appendicitis,* which the parents had evidently neglected. I insisted upon the child being removed from school and being placed under a physician's care. In two months he returned a well and relatively strong boy.

7. A third boy in this grade breathed so loudly

through his mouth that all the pupils in the room were disturbed. He was apathetic and stupid looking and he made no progress whatever in his studies, yet his parents had not observed much that was wrong with him. These parents were notified that adenoids were present and an operation was advised and done. When I next saw him one year later he was scarcely recognizable as the same child. His whole appearance had changed, he breathed quietly, his facial expression was bright, he had improved in physical vigor, and was doing as good work as the other children in his grade.

8. Sometimes the most evident principles of home hygiene are violated to the serious detriment of a child. My attention was called by a teacher to a boy in a fourth grade who was constantly giving her trouble. He was sullen, irritable, refractory, quarrelsome, and misbehaved generally. His physical appearance was extremely bad. Upon examination I found plain evidences of lung disease. He had a constant cough and it was said that there had been some sort of a hemorrhage some time before.

The school nurse discovered that this was a case where the father was tuberculous and that this boy had slept in the same unventilated room with his sick parent. No attention was given to a reasonable diet in this home and the household was in general very badly ordered. Against the wishes, and indeed with the absolute disapproval of the parents, the boy was taken out of school. Some sensible hygienic instructions were given by the nurse and an out-door life advised for the boy. Some months later I saw him on the

street, and to all appearances he was well on the road to recovery.

9. The neglect of the practice of dental hygiene is the rule rather than the exception among school children. For this state of affairs the home is of course primarily to blame. The plain fact that *clean teeth do not decay* had not as yet sunk into the inner consciousness of most parents, nor do they understand that various serious disorders originate in neglected teeth. A particularly striking instance of such dental neglect is furnished by the case of a boy whom I examined in a Pasadena school. He was reported to me because of his poor general physical appearance, but the teacher had not noted any trouble with the child's teeth.

An inspection of the mouth revealed the whole difficulty at a glance. The teeth were in a horrible state of decay. One tooth in particular was badly ulcerated, the gum had receded and most of the root on the cheek side was exposed to view. Some of the tissue was evidently *tuberculous*. Strange to say, the father offered the greatest possible opposition to having the teeth properly cared for, believing as most parents do that first teeth are meant by nature to decay and that it is not worth while to interfere with nature's beneficent methods. The older brother of this child was at the same time suffering from enlarged and *discharging* tuberculous lymph glands in the neck. Both children were miserably nourished, unhappy in appearance, and making no progress in school.

After repeated efforts on the part of the school phy-

sician and the Principal of the school, the father at last consented to have these boys placed under proper treatment. One year later I met them as I was driving one afternoon in the country. Their vigorous appearance and exuberant spirits were in such marked contrast to that of a year before that at first I did not recognize them. They had been visiting an aunt in the country, and were now walking home, a distance of six miles, and the smaller and formerly less vigorous boy was pulling the other one in a wagon!

Two boys like these saved from misery and perhaps death and made happy and useful, justify, the expense of a School Health Department. Yet some people still doubt the advisability of health supervision of children in the schools!

CHAPTER XI

THE HEALTH OF THE TEACHER.

Very few schools in this country pay any serious attention to the health of their teachers. Even in the matter of vaccination, although usually required of all pupils, teachers are ordinarily exempt. Not only is this true of teachers, but few Normal Schools insist upon any adequate physical examination of their students. The result of all this is that some teachers are employed who are constant menaces to the pupils entrusted to their care. Tuberculosis, although rather common, is not the only disease from which teachers suffer and which may react seriously upon their pupils. When we consider the amount of time which a child spends under the care of a teacher and the intimate relations which exist between them, it is evident that the teacher is only second in importance to the mother herself. Despite these self evident facts the teacher's physical condition rarely receives consideration, either for her own good or for the good of the child.

Books on School Hygiene or on Medical Inspection of Schools seldom discuss the subject of the teacher's health at all, or if they do, the topic is treated most inadequately.

Of all physical disorders, nervousness in its various phases is probably the one of greatest importance

among teachers. Public school teaching is of necessity (according to our present rather irrational system) a nerve racking occupation, even to those teachers who begin work with well balanced nervous organizations. What may we expect then of those individuals in the teaching profession who never have possessed much nervous stability?

Nervous Disorders Among Teachers.

One of the strongest arguments, among many others, in favor of a greater proportion of men teachers in the upper grades of our public schools is the fact that women by nature possess as a rule far less nervous stability than men. All of these facts are, however, largely ignored in the selection of teachers in our schools, and we go on complacently placing our sensitive children during the most important formative periods of their lives, under the care of teachers who may be a constant daily source of injury to them. The writer remembers very vividly one of his own teachers in a third grade who had so little self control that she was regarded with the greatest fear by her pupils. The slightest childish indiscretion was sufficient to send her into fits of uncontrolled anger, during which she would grab the unhappy victim (most often the present writer) by the scruff of the neck and whirl him about, red in the face and choking, until his feet struck the tops of the desks and the life was nearly shaken out of him. This teacher never smiled, she was always sour, unhappy, despondent, ill-natured. The influence upon sensitive children of a year spent under such a

termagant cannot be estimated, and the memory of it can never be entirely effaced. Later in life this woman's actions were easily explained to the satisfaction of her chief victim. Her mother and one sister became violently *insane*. This teacher possessed an extreme *neurotic* type of character which she had undoubtedly inherited, and, was no more fit to deal with young children than are many of the inmates of insane asylums.

Violent uncontrolled tempers and other ill natured actions are not the only or chief manifestations of nervousness in teachers. Many estimable, good natured, conscientious individuals possess little sense of *composure*. Sometimes teachers of this type are especially gay, vivacious, affectionate, demonstrative. Their very over-indulgence in these estimable qualities often unfits them to fulfill their duties properly. Such teachers are constantly solicitious for the welfare of their charges, they are all "dears and darlings"; they are coddled or severely disciplined by turns, and with little discrimination. I have seen some women teachers of this type who had succeeded in disorganizing the entire school through such manifestations of nervous instability. *Repose* with them was never practiced and therefore repose was an unknown quantity among the children in their schools.

Children in such schools dread the visits of the school nurse or physician because they have been told over and over again that "the doctor isn't going to hurt you," or "the nurse won't carry you away," or given similar unwise *suggestions* which in themselves

intimidate the child. Such teachers, like some parents, are likely to threaten certain children with an "examination by the doctor, to see why they don't behave." Under such circumstances the child of course comes to look upon the doctor as he does upon the "Policeman" or other bugaboo, of which some fond teachers and parents make constant use, to secure easy obedience.

Teachers, of all people, need to acquire a good sense of repose and must learn to administer discipline with wisdom and judgment.

Next in importance to the ill-tempered or over-solicitous types of teachers, come the depressed and melancholy types. These individuals rarely bring light and joy into the school room. They inspire awe but never love; they obtain "discipline" but never obedience. To this type, teaching is usually a necessary evil, and pupils are regarded as unfortunate incidents in their daily work for a livelihood. No school room should ever be clouded by the presence of such brooding *storm centers*. Children require a cheerful, happy environment, and if they do not secure it their lives are always blighted, for they are sensitive little human plants reacting to the slightest human frost.

Then there is the *intensely* and *abnormally active* teacher. This type is never at rest. Every common duty is performed with a wearisome strenuosity which leads the child in time to long for an opportunity to just once explode and relieve the tension.

Finally there are the victims of *habit-spasms* of one sort or another, which some children so readily and skillfully acquire by imitation.

The writer remembers one such teacher whom he had in his extreme youth. She constantly twitched and wrinkled her nose as if she smelled something unpleasant. It was not long before half the little boys in the class, with this ever present example before them, were going about sniffing the air like young colts. One *eye-blinking* teacher will sometimes set half of the girls and some of the boys to winking their eyes furiously, while any other peculiar nervous habits of the teacher, such as nervous laughing, raising the brows, stammering, nail biting, coughing, and the like, are soon reproduced with avidity by several of the apt pupils.

All of these types usually represent varying degrees of *neurasthenia,* or an unstable nervous equilibrium, which in itself if uncontrolled, ought to debar their possessors from the serious responsibility of training children.

Indigestion.

Next to nervousness, *indigestion* in its various phases is probably the commonest complaint among teachers. For this state of affairs there are many reasons, but most of them fall into a common group, viz, lack of exercise, worry, insufficient mastication, improper preparation of food.

There is no better way to keep healthy and happy than by learning the importance of careful habits of eating. Most of our headaches, "fits of the blues," and depressed feelings come from the abuse of food. *People with healthy digestions are rarely sick.*

Unless we take good care of the digestive organs, we

cannot expect to have much resistance against disease. The digestive organs naturally secrete juices which are antagonistic to many disease germs. Abuse of these organs weakens their powers of defense. Many colds are taken because of disordered digestion. Decayed teeth are more often caused by indigestion and bad nutrition than by anything else.

It is no disgrace to be sick when we cannot prevent it, but ignorance of how to keep well is rather worse than any other sort of ignorance. I have seen many teachers of Physiology and Hygiene who as practical examples of the observance of the laws they taught, were very sad failures. One may be justly proud of vigorous health, especially when it is the result of careful study and obedience to nature's laws.

Probably more sickness is caused by the *improper use* of food than by any other one thing. Most people eat too much food. *Overeating* easily becomes a habit. When the stomach is overloaded, digestion is retarded and some of the food is sure to *ferment*. Gas forms and also certain other products of fermentation. The gas causes bloating, with uncomfortable sensations. Sometimes the stomach pushes up against the heart and causes palpitation. Many persons imagine they have heart trouble, when indigestion is really the cause of the symptoms. The fermentation products are absorbed by the blood and circulate in the body. Some of these are *poisons*. By overindulgence in food, which may in itself be harmless, a person may thus poison himself, just as if he had swallowed actual poison. This is one of the commonest causes of headache.

The state of the mind has a great deal to do with how our different organs do their work. Pleasant company, good cheer, and attractive food all stimulate the organs of digestion to do their best work. Unpleasant surroundings, unattractive food, or worry may cause an attack of indigestion. People hardly ever suffer from indigestion after a pleasant banquet, even when they overeat. But the most frugal meal with a bad temper or other unpleasant conditions may actually stop the process of digestion.

Many persons suffer from chronic dyspepsia simply because they *imagine* that their food will disagree with them. When the mind is directed into cheerful and healthy channels and common sense is used about eating habits, dyspepsia usually disappears. Dyspeptics generally form the habit of thinking too much about themselves and of resorting to drugs from which they appear to expect miracles.

A healthy person has a good appetite and enjoys eating. But such a person does not form unnatural food habits. One should not be fussy about food. It is easy to get into the habit of thinking that one cannot eat this or that particular kind of food, but with few exceptions, we can eat any wholesome food. The less one worries about his food, the better.

Fads in regard to food and peculiar diets ought to be studiously avoided. These fads seem to be the particular obsessions of teachers. We hear much of fruit diets, vegetable diets, nut diets, the no breakfast cure, and the like. One needs only to remember that experience has proved, and science has demonstrated, that a

mixed diet taken *three times daily* is best for the average man or woman. The diet question is very easily and very satisfactorily settled by remembering that *thorough mastication* of all sorts of common sense, well prepared food will preclude the danger of over-indulgence, and if one will thoroughly *masticate* or "Fletcherize" one may forget most other rules of eating with impunity.

Headache.[1]

Headache is a distressing symptom from which many teachers suffer, and which materially decreases their happiness and usefulness in school. It ought to be kept clearly in mind that headache is a *symptom,* and not a disease in itself.

It has many causes, among which may be mentioned the following: eye strain, nervous exhaustion, menstrual irregularities, poor nutrition, indigestion, jaundice, catarrh, rheumatism, neuralgia, and *bad ventilation* (air poisoning.) Eye strain, constipation, indigestion, bad ventilation and nervous exhaustion are by far the commonest causes of headache. One ought always to attempt to discover the cause of a headache before trying to treat it. Such causes are usually not hard to find, and once known, the treatment is usually successful. If the cause is not easily discovered and remedied, medical attention is necessary, for headaches should never be neglected.

The common method of resorting to "headache powders" and other drugs, without much thought as to

[1]Most of the material on headaches, dyspepsia and colds is taken from the author's Health Studies, D. C. Heath Co., Publishers.

the trouble, cannot be too severely condemned. Most headache powders advertised as cures contain coal-tar products, such as acetanilid, which if used without the advice of a physician, are likely to injure the heart and do much other harm. Such remedies never remove the cause, they merely afford temporary relief and deceive the senses. Some deaths have been attributed to the use of headache patent medicines.

Eye Strain.

So much has been written about eye strain and knowledge of its consequences is now so general, that little need be said on this subject here. The common symptoms of eye strain in adults are—headache, disinclination to continued reading, nervousness, indigestion and blurred vision. Sometimes the only or chief symptom present is *nervousness*. Many cases of nervous breakdown among teachers have been due to this cause alone. The writer knows a prominent teacher who for three years suffered from extreme neurasthenia and was finally obliged to spend several months in a Sanatorium, only to discover at last that the entire trouble was caused by *muscular unbalance* which produced constant eye strain, or what is more exactly the fact, *nerve strain*.

Many most unexpected results have been produced by this defect. The teacher who feels special interest in this subject is referred to the "Biographic Clinics" of Dr. Gould, in which it is shown very conclusively that undetected and therefore uncorrected eye strain has been the chief cause of the misery suffered by such

noted men as Charles Darwin, Thomas Henry Huxley, Carlyle, Wagner, and many others.

The ability to read ordinary print at the usual distance does not prove that eye defects may not be present, for some such defects are at least in part overcome by an unconscious nervous effort on the part of the individual. Slight degrees of astigmatism often produce worse results than more serious forms of eye trouble, because the individual overcomes the defect through constant but unrecognized nerve strain. If the defect were more noticeable to the individual it would probably be recognized earlier and corrected by the aid of glasses. The most common uncorrected and often unnoticed eye defects are astigmatism, muscular unbalance and far sight, (hyperopia).

Colds.

Every teacher must have noticed how easy it is to take cold when very tired or exhausted. Anything which reduces the resisting powers of the body makes one more susceptible to disease of any kind.

It is because the bacteria of colds are nearly always present and because most people do many unwise things which weaken their natural powers of defense against them that colds are so common. Those who learn how to live normal lives hardly ever suffer from colds. On the other hand, many people eat too much, overdress themselves, live in badly ventilated places, or do other unhygienic things—and then wonder why they are constantly subject to colds.

There are many other reasons to account for a tendency to colds. For example diseased tonsils and

obstructions in the nose, such as turbinates and certain other growths, render an individual an easy victim.

Other indirect causes which make one liable to take cold are usually one or more of the following: poor nutrition, exhaustion, constipation, exposure to dust, indigestion, bad ventilation, improper methods of clothing the body, which usually result in keeping the skin surface damp, and improper care of the feet.

Once knowing the causes of the disease we call a cold, the prevention is fairly easy. Any one who is not in delicate health can learn to avoid colds. No one can afford not to do so.

Cool daily bathing increases the resistance of the body. Such baths train the blood vessels of the skin to dilate and contract quickly. This is desirable in order that we may promptly meet sudden changes in temperature by increasing or checking perspiration. The practice of cool bathing is beneficial because it trains the nervous system which directly controls the capillaries.

The use of heavy underclothing which keeps the surface of the body constantly moist is to be avoided. Linen and cotton mesh are better than wool; the material must be such as to allow evaporation of perspiration. The habit of bundling up the neck with furs or other wraps is a bad practice, except when one is exposed to very cold weather. Rubbers and overshoes should never be kept on long at a time, and heavy stockings need never be worn.

Bedrooms must be well ventilated with open windows, and the bedclothes should be warm but light in

weight. The practice of sleeping out of doors is desirable when the climate and surroundings permit. Teachers particularly should be careful that the air of the school room is not too dry, as is apt to be the case in steam-heated schools. Air that is too dry takes up moisture from the nose and throat and is almost sure to result in catarrh. Sudden chilling should be avoided as far as possible. Sensible care of the digestive apparatus and attention to the bowels are most essential.

When one does come down with a cold despite precaution, it should never be neglected. The best method of cure is to go to bed for a day or two in a well-ventilated room, take plenty of hot drinks, eat little food, and use some simple cathartic. Washing out the nose and throat with weak hot salt water and soda is frequently of great benefit.

The results of frequent or neglected colds are often serious. Many teachers are constantly having colds, and one result of this is *chronic catarrh*. Much mucus is secreted from the nose and throat, and often the bronchial tubes become involved. This means that inflammation is always present and that certain harmful bacteria never cease their labors. Teachers who suffer in this way are likely to have a decided tendency toward tuberculosis. Sometimes these catarrhal conditions travel back through the eustachian tube connecting the throat with the ear, and serious trouble in the ear follows. Most cases of deafness are due to neglected catarrh.

The usual "catarrh remedies" are either worthless

or only temporary in the relief they give. Catarrh always needs careful attention from a skillful physician. No one can be constantly subjected to colds and not suffer seriously, for though a single cold may seem trivial, repeated attacks predispose to catarrh, tuberculosis, and probably to pneumonia.

The various physical disorders of teachers must of necessity react upon their pupils in at least two ways; first, through general unfavorable influence; second, through the direct transmission of disease. A teacher with tuberculosis may easily infect numbers of her pupils, and tuberculosis is not infrequent among teachers, especially in California and the South, where climate attracts the invalid. Even a cold may bring serious sickness to one or several of the pupils of the teacher affected. Colds, as Mr. Allen says, "can always be charged to some one else. . .the chief danger of a cold is to our neighbor." When our neighbors are children, the danger is doubly great, for *mere colds* may lead by indirect methods to pneumonia, tuberculosis, or even diphtheria. One teacher with a cold may easily infect a whole class, and in some of the pupils the result is pretty sure to be serious. Sometimes "colds" affecting either teachers or pupils will be regarded as much a cause for exclusion from school as the more serious diseases such as scarlet fever, measles, and whooping cough now are.

The splendid effect upon pupils of exuberant health in the teacher can never be over-estimated, but the deadly depressing effect on the young of ill-health is rarely appreciated. The delicate or sick teacher is

nearly always *fatigued.* "Fatigue begins at the top and works down." The nervous teacher is fatigued all of the time. Often that is why she is nervous. The dyspeptic teacher is fatigued, for dyspepsia, mal-nutrition, and fatigue are inseparable companions. Fatigue, as ordinarily expressed in lowered vital activity, means *fatigue poisons* in the blood. Disease, over-work, vitiated air, social dissipations, anger, and other undue emotional uncontrol all result in fatigue poisons which sooner or later reach the nerve cells of the brain inhibiting clear thinking and muscular activity. Fatigue reduces the powers of self-control. The fatigued teacher is a *fussy* one, frequently she is an angry one also. Cumulative fatigue, as Dr. Gulick well says, reduces the whole personality, mental, moral, physical to lower and cruder levels.[1] Fatigue leads to crooked thinking and "crooked thinking by a teacher leads to crooked thinking by a pupil." Fatigue accompanies all diseased conditions in time and the degree of it is directly proportional to the degree of physical disarrangement in the system.

Frequently the ill-health of teachers is a direct result of the maladjustments of the school system. "Teachers no less than pupils, have a heaven-ordained right to work so adjusted that the highest possible physical condition shall be maintained automatically." Teachers, as well as pupils, have the right to a healthful environment, and reasonable teaching requirements are as much due them as are reasonable lessons due her pupils.

[1] "Mind and Work", (Gulick).

Trustworthy certificates of physical fitness ought to be required of teachers at the opening of every school year. In my own experience as Medical Director of Schools I have time and again observed teachers afflicted with tuberculosis, asthma, deafness, defective vision, neurasthenia, deformities, mal-nutrition, anæmia, heart disease, and a number of other disorders. The schools which have introduced medical supervision of pupils only have done but half their duty. Teachers must not only be physically sound when they begin the year, but they must themselves habitually obey the common laws of health. Disobedience of these common laws by the teacher means ineffective teaching of them.

From every teacher with abundant vitality and forceful personality, there radiates an influence for good which far transcends mere mental capacity, however great that may be.

PART III.

HEALTH ORGANIZATION IN SCHOOLS

CHAPTER XII.

AN OFFICE SYSTEM FOR CITY SCHOOL HEALTH DEPARTMENTS.

There are certain fundamentals underlying modern office systems, these being simplicity, brevity, and accuracy. Some form of card index most fully satisfies these requirements. Even if the system adopted is small enough to be housed in a few desk drawers, it is well from the beginning to establish a number of divisions of the department. The following cover practically every field of activity in the modern school health department.

Department of Hygiene.

1. Division of Sanitation.
2. Division of Health Education.
3. Division of Medical Examination.
4. Division of School Nursing.
5. Division of Relief.
6. Division of Epidemiology.
7. Division of Statistics.

The designation "Department of Hygiene" is used to avoid confusion with a probable "Department of Health," existing as part of the city government.

Correspondence. In general any communication from the office of the Medical Director of schools,

[1]Prepared for this book by Dr. John N. Force.

should be typewritten on standard sized paper bearing an official letter head. It should be numbered and a carbon copy retained and filed. Clippings should be filed in envelopes under a subject index, and magazine or book references may be recorded on the outside of these subject envelopes.

Division of Sanitation. All matters pertaining to the sanitation of the school buildings belong to this division. In order to acquaint himself with existing conditions, the Medical Director should make, or cause to be made, a careful sanitary survey of each building. This record is kept in his office, and alterations made as conditions improve. There are many forms for this survey of school buildings. Allen's "Civics and Health" gives one, and there are several in Gerhard's "Guide to Sanitary Inspections." Insanitary conditions should be immediately reported to the superintendent of schools by letters describing them, and suggesting remedies.

Division of Health Education. If the Medical Director conducts lectures for parents, he should have announcements of the course printed for distribution. If he wishes to give information in selected cases he may prepare a series of health leaflets. Suggestions for these can be found in the circulars issued by many state and local boards of health. As examples of these may be mentioned the cards used in the schools of Everett, Massachusetts for cases of skin disease. These cards combine information with a prescription which may be torn off and taken to a pharmacist. The same principles will apply to the

training of teachers in reading the health index, maintaining sanitary room conditions, and teaching hygiene. "Suggestions to Teachers and School Physicians Regarding Medical Inspection" is the title of a pamphlet issued by the Massachusetts Board of Education, which contains many excellent ideas. "Health Studies" D. C. Heath & Co., is an example of a grammar grade text in hygiene on absolutely modern lines. Record of lectures delivered, and printed matter distributed should be kept in the office of the Medical Director.

Division of Medical Examination. From this division originally developed all the others and it is still the most important.

Many forms have been advocated for this work, from separate cards for each physical examination to a complete health record extending over the whole school life. After study of these the one herewith submitted has been developed. This card includes in the health record of each pupil a complete "follow-up" system. The other side of the card may be used for the attendance and scholarship record for the whole period of school life. A practical point in printing cards on both sides is to pattern after the impressions on coins. The back of a card may then be read without removing it from the filing drawer. This form may be filed in duplicate. One copy in the custody of the Principals follows the changing fortunes of the child from grade to grade. The other is filed alphabetically in the office of the Medical Director to await the next annual examination of the child. At

the time of examination, some form of notice should be sent to the parents of each defective child. One system advocates a different card for each of the common physical defects. This is an absolute waste of printing and a needless increase in red tape. The second notice is sent when the teacher reports lack of attention to the first within a stated time. If both notices are disregarded, the division of school nursing is called into action.

Once a month the Principal notes on his individual record cards, defects which have been corrected since the last monthly report. He then reports these corrections and the uncorrected remainder to the Medical Director. The latter from this report may then bring his card records up to date. By use of a "code" for indicating defects and their corrections the whole work is much simplified.

Division of School Nursing. The School Nurse is the medium of communication between the Medical Director and the family. The work of school nurses has been well described in a recent article on the school nursing system of Germany. "They are to visit the homes of the parents of such school children as receive no medical treatment in spite of the repeated messages, and to endeavor to induce the parents to follow the advice of the school physician. If a child in the school is noticeable for its uncleanliness, or insufficient clothing or poor nutrition, the nurse is to inform herself regarding the economic status of the parents, and the housing and nutritive condition of the child."

In many places the school nurse treats the common skin diseases, and does minor surgical dressings. The advisability of this in a city with proper dispensary facilities is questionable. The nurse needs as much training in social service, as in nursing. She should make a weekly report of visits and a social survey of each family visited, and maintain a card file of these surveys at the office of the Medical Director, noting changes as they occur.

Division of Relief. Allen in "Civics and Health" commends our American way of "getting things done" in contrast to the foreign way of "doing things." It is better, he maintains, not to care for our indigent defectives in the schools, but to refer them for medical, dental, or social attention to existing relief agencies. Record should be kept of such references, and the agency should be asked to report back to the Medical Director a memorandum of the relief afforded.

Division of Epidemiology. The conduct of this division is determined to some extent by the manner in which contagious diseases of school children are supervised by the local Board of Health. If the report of a case is received from the health department, at the office of the Superintendent of schools by telephone, the operator should make out duplicate exclusion cards, one for the information of the Principal of the school, and the other for the Medical Director. By having these forms bound up alternately paper and card, carbon sheets may be used. The paper to the Principal includes a detachable notice

to the parents of the child excluded, and the duplicate record on the card can in the same manner be divided to send as a notice to the health department, and retain a stub for the file of the Medical Director. The notice to the health department serves as a check on the telephone message, or as an original notice if the case was discovered at school. Note should be made when the child is re-admitted. From his card record the Medical Director can make up his "pin map." A pin map is a powerful public health object lesson if displayed on the walls of the Medical Director's office. A map of the city is ruled off into school districts, and for every case of contagious disease a pin is placed in the square where the child resides. If the common black-headed pins are dipped in different colored sealing wax, the distribution of each disease can be determined and many useful facts deduced therefrom.

Division of Statistics. If the preceding card files and reports have been carefully kept, the labor of the monthly statistical report of the Medical Director to the Superintendent of schools, will be minimized.

Summary of Forms.

1. Letter head.
2. Sanitary Survey of School Building.
3. Educational Pamphlets.
   - (a) Announcement of lectures for parents.
   - (b) Announcement of lectures for teachers.
   - (c) Health leaflets.
   - (d) Pamphlets on school hygiene.

4. Individual Health Record Card.
5. First Notice to Parents.
6. Second Notice to Parents.
7. Teacher's or Principal's Monthly Card Report of Defectives.
8. Social Survey Card.
9. Nurse's Weekly Card Report of visits.
10. Card Request for Relief.
11. Exclusion Card.
12. District Map of City.
13. Medical Director's Monthly Card Report, (made in duplicate.)

In this system all forms requiring to be filled out and filed, with the exception of the sanitary survey of school building, are on cards five by eight inches. They can therefore be housed in uniform filing drawers. The retained stub of the exclusion notice can be filed in a drawer which has been partitioned lengthwise. Four forms only require duplication, and only eight require writing, four by the Medical Director, one by the Medical Director and Principal, one by the Principal alone, and two by the nurse. There is one annual form, two forms used monthly, and one weekly. The others are filled out as occasion arises. Foes of red tape who see too much detail in this system, will notice that Providence, Rhode Island uses twenty-five forms in her medical inspection of schools.

DEPARTMENT OF SCHOOL HYGIENE

Scholarship Record

CITY SCHOOLS OF BERKELEY

NAME	DATE OF BIRTH	PLACE OF BIRTH	PARENT	PARENT'S OCCUPATION
ADDRESS	ADDRESS	ADDRESS	Date of Leaving School	Father's Nationality
1	4	7		
2	5	8	Cause of Leaving School	Mother's Nationality
3	6	9		

SCHOOL YEAR	FIRST TERM						SECOND TERM					
	SCHOOL	Grade	DATE ENTERED	Weeks Enrolled	Attendance	Scholarship	SCHOOL	Grade	DATE ENTERED	Weeks Enrolled	Attendance	Scholarship

For details see other side

DEPARTMENT OF SCHOOL HYGIENE

CITY SCHOOLS OF BERKELEY

Physical Record

HEALTH RECORD OF SEX: M.-F. BORN:

ADDRESS History of Rheumatism Measles Scarlatina

Diphtheria Varicella Pertussis Pneumonia Mumps Grippe

SCHOOL YEAR	1		2		3		4		5		6		7		8		9	
EXAMINATION AND RESULTS	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R
DATES																		
General Appearance																		
Nutrition																		
Flat Foot																		
Eyes																		
Ears																		
Nose																		
Throat																		
Teeth																		
Skin																		
Heart																		
Lungs																		
Neck Glands																		
Vaccination																		
Visits of Nurse																		
Relief Requests																		

NOTE.
†=Normal. C.=Corrected. E=Examination.
—=Not normal. N.=Not corrected. R=Result.
P. C.=Partially corrected.

REMARKS

For details see other side.

DEPARTMENT OF SCHOOL HYGIENE

CITY SCHOOLS OF BERKELEY

Office of the
Medical Director
HIGH SCHOOL BUILD'G
Take this Notice to your
Doctor or Dentist

NOTICE TO PARENTS OR GUARDIANS

_____has received a physical examination and is found to be in need of_____attention.

Please see your own physician or dentist at once. Take this notice with you.

The SCHOOL PHYSICIAN may be consulted on Tuesday, Thursday, and Friday afternoons from 2 until 4 at the Medical Office in the High School. He will arrange for all cases that cannot be cared for in the usual way. He will also be glad to give advice on any school health question.

DR. ERNEST BRYANT HOAG,
Medical Director of Schools.

Hours of the Dental Dispensary: Mondays and Wednesdays, 2 until 5. High School Building.
Medical Dispensary: Daily 9 to 11 and Tuesdays, Thursdays, and Fridays, 3 to 4, 1910 Kittredge St.

Nature of Defects
Eyes
Ears
Nose
Throat
Teeth
Skin
Glands of Neck
Heart
Lungs
Nutrition
Vaccination
Contagious Disease
Flat Foot
Spine

(Front of Card)

Health Department, Pasadena Public Schools

DATE _____

PUPIL'S NAME _____

PARENT'S NAME _____

ADDRESS _____

1 *Posture*
2 *Nutrition*
3 *Color*
4 *Activity, Mental*
5 *Activity, Physical*
6 *Teeth: crooked, prominent, decayed*
7 *Mouth, breather*
8 *Frequent absences*
9 *Bad behavior*
10 *Inattention*
11 *Delinquency in studies*
12 *Squinting, or other eye symptoms*
13 *Deafness*
14 *Nasal Voice*
15 *Frequent colds*
16 *Skin diseases or pimples*
17 *Twitching of eyes, face or any part*
18 *Offensive breath*
19 *Over development, physical*
20 *Under development, physical*
21 *Uncleanliness*
22 *Vicious personal habits*
23 *Signs of fever*
24 *Signs of any contagious disease*
25 *Cough*

THE TEACHER WILL PLEASE FILL IN THE BLANKS AT THE TOP OF THIS CARD, AND CHECK OFF THE POINTS WHICH SHE THINKS REQUIRE ATTENTION.

(OVER)

(Reverse Side)

PHYSICAL EXAMINATION No. _____

HEART _____

LUNGS _____

EYES _____

EARS _____

NOSE _____

THROAT _____

TEETH _____

CONTAGIOUS DISEASE _____

SKIN DISEASE _____

SPECIAL DATA

RECOMMENDATIONS

RESULTS

Medical Examiner

DEPARTMENT OF SCHOOL HYGIENE

NURSE'S RECORD

Name ______________________ School ______________________ Date ______________

Address ______________________ Nationality ______________________ Age ______________

Result of Physical Examination ____

	Man	Woman	Children
Income			
Occupation			
Nationality			
Place of Birth			
Year of Birth			
First Name			

HOUSE		SLEEP		WORK AND PLAY		PREVIOUS ILLNESSES
Tenure of		Hour for Rising		Play Space		
Repair		" " Retiring		Manner of Plsy		
Cleanliness		Locstion of Bedroom		Books		
Gen. Ventilation		Ventilation "		Toys		
No. Windows Screened		No. in Same Room		Work after School		
Water Supply		Adults with Child		PHYSICAL CONDITION		
Bath		Bedding		Of Father		
Faucet or Pump		FOOD		" Mother		PREVIOUS HISTORY
Stationary Tubs		Variety		Marital Relation		
Sink—condition		Tea—Coffee—Milk		Habits of Sobriety		
Toilet—construction		Storage Facilities		Of Father		
Furniture—quality		Regulsr Meals		Of Mother		
" quantity		Hot or Cold Lunch		CLOTHING		
" condition		Manner of Eating		Quantity		
Light—kind		Appetite		Quality		
		Canned Food		Condition		

Date of Visits

Results

BERTHA WRIGHT, School Nurse.

CHAPTER XIII.

A GENERAL PLAN FOR HEALTH SUPERVISION IN SCHOOLS.

The necessity for careful supervision of the health and development of school children is no longer open to argument. In the best towns and cities of the United States the people themselves are demanding such supervision as one of the most vital functions of the public school system. No school can any longer claim a place in modern educational progress which ignores or neglects the health conditions of its pupils. A child to be properly educated must have good health.

Organization Plan.

Medical inspection, or as it is better called, health supervision of schools, is provided for by methods which will vary all the way from desultory voluntary services to the complete, well paid, methodical plan of New York City. In general it may be safely stated that schools get just about what they pay for. One does not usually expect satisfactory service from a voluntary or poorly paid superintendent or teacher. Whatever sort of public service is worth having is usually worth paying for. Health officers in schools should, therefore, be regarded as any other employees of the school system. We frequently hear of a school medical officer inspecting several thousand children

in a year, or even less time, while giving to this work only a portion (and usually a small one) of his time, and receiving for such work a pittance of $200 or less. Now such a piece of work as this is sometimes worth just about what is paid for it, but more often its value is much less. No inspector can possibly cover several thousand cases yearly in a few hours per week, and do valuable work for the schools. Such a man is just what his name implies, an "inspector." He *inspects,* it is quite true, but he never *studies nor adjusts.*

To be truly useful, health work in our schools requires training, aptitude, time, and reasonable recompense. Except in cities where the health department is organized on a large and complete plan with its various departments in charge of well-qualified directors, the medical supervision of schools ought to be under the direct control of the Board of Education. This is true because medical work in schools naturally forms an essential part of our general educational system. It is a great mistake to think of such work as first of all *medical,* for it is first of all *educational.* It must aid the boy and girl in healthy growth and development; it must help the school to adapt its work to individual physical and mental conditions; it must assist in the correction of existing physical defects and in the prevention of others; it must teach the fundamental elements of preventive medicine; it should superintend in a general way the teaching of physiology and hygiene.

Parents Not Always Wise in Health Matters.

If all parents were sufficiently wise in health mat-

ters, it would probably be quite unnecessary for schools to make any special study of the physical condition of the children entrusted to their care. All that could then be fairly required would be the guarantee of a healthful school environment, including such things as good ventilation, correct methods of lighting and heating, sanitary plumbing, the elimination of contagious diseases, frequent recesses, sufficient attention to physical education, and the proper kind of health instruction. But it is a fact and not a theory that not all, or even most parents, are wise in matters pertaining to the health conditions of their children. It becomes, therefore, the plain duty of the school department to furnish not only a healthful school environment, but also a careful guardianship of the personal health of its pupils.

If medical supervision were synonymous with medical inspection, from which our present health work in schools originated, it would be very easy for one physician to inspect ten or more thousand children per year but with careful medical supervision the number examined will usually be far less. Medical inspection as it was ordinarily carried out merely contemplated the superficial examination of pupils for the detection of skin diseases and signs of the ordinary contagious diseases of childhood.

Medical supervision includes far more than inspection. It means the health study in a broad sense, of the children in the schools, with an attempt to adjust them to their physical environment. It means a study of the conditions of sight and hearing, an ex-

amination for evidences of nasal obstruction, diseased tonsils, seriously defective teeth, disorders of nutrition and development, unbalanced nervous organizations, for signs of early heart or lung disease, for enlarged glands, skin diseases, as well as symptoms of children's

A Group of Children Awaiting Physical Examination.

common contagious diseases. The careful physical study of school children has, therefore, supplanted the early and inadequate method of inspection, and has shown clearly that there is an intimate relation between the child's physical condition and his mental progress and future success.

A Practical Working Plan For a City.

In order to discover those pupils who most need physical attention, a plan can be devised whereby the teacher makes the first selection and refers the pupils selected to the examining physician. A convenient method is to furnish a card about 8x10 inches, having printed on one side of it, twenty-five arbitrary signs and symptoms of physical defects. These are expressed in terms which any teacher can understand and use. For example terms such as the following may be used: (See page 154).

Posture, nutrition, endurance, mental activity, appearance of teeth, mouth-breather, frequent absences, inattention, delinquency in studies, squinting or other signs of eye trouble, deafness, nasal voice, colds, offensive breath, signs of contagious diseases, condition of skin, cleanliness of person, vicious habits, home conditions, nervous symptoms.

Reading the Health Index.

Any intelligent teacher can observe points such as these among her pupils if she tries. This is what is called reading the "Health Index." A set of cards is given to each teacher by the principal. The teacher fills in the parent's name, pupils name, age grade, and home address, at the top of the card, and then simply makes a check opposite the sign or symptom she has observed, as for instance, "nasal voice." She may perhaps fill out ten or twelve of these cards in a room of twenty-five or thirty pupils. These cards are then handed to the principal, who in turn gives

them to the school physician when he calls. The physician then calls these pupils to the principal's office one at a time. Here they are carefully examined and the results are recorded on the reverse side of the pupil's cards. This examination includes the eyes, ears, nose, throat, heart, lungs, skin, teeth, general physical appearance, and indications of any contagious or nervous disease.

The teacher receives the cards belonging to her room after the examinations have been made of her pupils, follows the cases as far as possible and makes a monthly report to the physician. If this is not done the school physician soon loses all knowledge of the cases he has examined. When teachers are aware of the physical embarrassments of their pupils, they are then in a position to treat them more intelligently in their daily school work. Whenever the examining physician discovers physical conditions which need attention, a notice is sent to the parent of the child suggesting further examination and advice from the family physician, dentist or specialist, as the case may require, and offering the opportunity for further advice at his office.

The Work of the School Nurse.

The school nurse should accompany the school physician on his visits to schools. When home visits are advisable for purposes of personal advice, explanation, or for other reasons, the nurse can note this fact during the physical examination and call at the home as early as possible afterward. These personal calls are productive of much good and are nearly always received with manifestations of interest and with con-

sideration. Sometimes the nurse can show parents how to construct a cheap sleeping porch for a child much in need of fresh air. This has accomplished much good in many of our Berkeley homes already. Sometimes the nurse can give suggestions about proper food for a child and demonstrate how it ought to be cooked. Sometimes the nurse can provide means for attention to medical or dental conditions which would otherwise be neglected. Among the very needy, the nurse can personally dress any minor accident cases, take care of some contagious diseases and care for simple eye inflammations.

The nurse often discovers conditions of home environment which explain many of the defects found by the physician in his examinations in the school. The relation of home health to school health is in many ways an intimate one, and the school nurse is indispensable in studying this relation and in providing means for the proper adjustment of many of the unfavorable situations she is able to detect in her personal visits.

Of the one hundred and fifteen different house visits made by the Berkeley school nurse during the fall term of 1909, practically ninety per cent of them were productive of good results.

Of the first seven hundred and fifty children referred to the school physician by the teachers in Berkeley, nearly seventy per cent were found to be in need of medical or dental attention. Of these the greatest number showed defects of *nutrition, enlarged lymph glands, and badly decayed teeth.*

Following the Cases Needing Attention.

Without an adequate system for following cases which have been found to need medical or dental attention, very little good can be accomplished by any method of health supervision. The following plan will be found to work satisfactorily, but no doubt other ideas would serve the purpose equally well. After a pupil has received his physical examination and the case has been recorded, send his card back with him to his teacher. Each teacher will thus have in her possession the record cards for those of her pupils who have received an examination. From time to time she must attempt to discover what attention the notice to the parent has received and record this on the pupil's card. Where no attention has been given to the case, the physician can be notified and a second notice sent home together with an invitation to bring the child to the office for further examination and advice. In many cases it will be found necessary to provide medical or dental service for these cases in order to get anything done for the child. If possible some sort of a medical and dental school dispensary should be established. If this cannot be accomplished, then arrangements can usually be made with individual physicians and dentists to care for such children at their private offices. Pure charity service ought usually to be avoided, but arrangements for very small charges must be made. An advisory health committee composed of several physicians and dentists will be found to be of very great service in any school health department. It is very desirable in some schools to

have the pupils' school standing, attendance, etc., on one side of the card and the physical record on the other. By this method it is often possible to explain retardation, slow mentality, nervous manifestations, etc., by the physical conditions found present. The school nurse should keep a careful card record of all her home visits and from time to time should inform the examining physician of the results she has obtained. For this purpose a special card must be used.

The question often arises as to whether a doctor ought to give all of his time to school health supervision in cities of some size. Arguments of value can be made on both sides of this question. The discussion usually adjusts itself however, as few places are at present willing to pay salaries which justify efficient physicians in giving up all their time to this kind of medical specialty. It is the writer's opinion that men or women who devote only half of their time to health work in schools will usually give the best service. By this method better physicians can be induced to undertake the work than where all of their time is demanded. It is also true that physicians who are in touch with a variety of medical cases will generally prove more valuable to the schools than those who confine themselves to strictly school medical work. Health work in schools is of necessity very monotonous and extremely limited in medical scope, therefore the best service cannot be expected from physicians who are not in touch with a large variety of cases outside of those found in schools. In time the medical officer who gives his time exclusively to health work

will almost inevitably fall into unfortunate ruts through the very nature of his routine occupation.

It is sometimes possible to employ a school health officer who is also teaching Hygiene or a related subject in a University or other institution of learning, or who is a city or county health official. In these instances the combination works quite satisfactorily even though the individual may not be engaged in actual private practice.

A competent physician in the schools should be well paid. The office can never be one of dignity if he is not. In general it may be said that such an official should receive the same salary for one half of his time as is given to the best paid principal in the same city for his full time. On this basis the best of medical talent can be obtained, but on any other salary basis efficient service will rarely be secured. This plan is self adjusting, small places paying small salaries and larger ones proportionately larger salaries. The real danger of a school health position degenerating into a political job must never be forgotten.

A Plan for Small Communities.

In small towns and in the country it will often be found quite impossible to organize a school health department on anything except the simplest basis. Sometimes it will be found quite hopeless to employ either an examining physician or a school nurse. In such instances the teacher herself must learn how to read the Health Index of her pupils and advise the parents what children ought to be taken to the

family physician, dentist, or specialist for a thorough examination. Many times it will be possible for the Principal of the school to make it his particular duty to read the Health Index of all the pupils in his school. In small communities it is sometimes feasible to employ a physician to spend a very limited amount of time in the schools where he may co-operate with the Principal or the teachers in making physical examinations and aid them with expert advice. It will usually be found best for teachers to confine their work to *general inspection*, calling in the physician to confirm their observations by more careful examinations.

Voluntary medical service is frequently offered, but it is rarely advisable to accept it for reasons that are self-evident. Even the smallest places can afford to pay for a limited amount for medical advice in schools. At least twice each year a physician ought to make a careful health survey of the sanitary conditions of all school grounds and buildings and this should be undertaken only by a doctor especially qualified for such work for many good physicians have never had experience or training in school sanitation. In small counties it may be possible to employ a physician to supervise the health of all schools in the county.

If select cities such as Pasadena, where four hundred and twenty-one of the first seven hundred and six pupils examined were found to be in need of medical or dental attention, and about sixty per cent of the first seven hundred and fifty examined in Berkeley were found in the same condition, it would appear that there can be no argument against the necessity for medical supervision in less favored places.

GENERAL HEALTH SURVEY TO AID THE TEACHER IN DETECTING DEFECTIVE PUPILS.

School..... Grade..... Teacher.....
Pupil..... Age..... Address.....

1. Do you drink tea? How many cups?
2. Do you drink coffee? How many cups?
3. Do you drink cocoa or chocolate? How many cups?
4. Do you drink milk? How many glasses?
5. Do you eat your lunch at school?
6. Do you ever come to school without breakfast? How often?
7. Do you ever go without lunch? How often?
8. What time do you go to bed?
9. What time do you get up?
10. Do you do any work out of school hours?
11. Do you study any out of school hours? How much?
12. Do you have headache very often?
13. Does the print blur when you read?
14. Can you read writing on the board easily?
15. Can you always hear the teacher easily?
16. Do you ever have ear ache?
17. Do you ever have **running** ear?
18. Do you ever have tooth ache?
19. Have you ever been to a dentist?
20. Do you own a tooth brush?
21. Do you use a tooth brush every day?
22. Do you have your bedroom window kept open or closed at night?
23. Are the windows in your house screened in summer?
24. What school work do you like best?
25. What school work do you like least?

HEALTH SURVEY OF PUPILS WHO HAVE BEEN EXAMINED BY THE SCHOOL PHYSICIAN.

1. Names of pupils who have received a Physical examination and whose card shows one or more defects.
2. Character of defects.
3. Has any attention been given to case?
4. Will attention be given soon?
5. Special suggestions about any case.

ILLUSTRATION:

John Jones, Washington School, 5th grade.
Adenoids; no attention.
Teeth; attention.
Eyes; will receive attention.
Nurse ought to visit home which is at 2526 University Ave.

HARRIET SMITH,
Teacher.

CHAPTER XIV.

SOME DETAILS OF THE PHYSICIAN'S EXAMINATION.

In examining the throat, wooden tongue-depressors, which may be used once only and then discarded, are absolutely necessary. In testing eyes, no special light apparatus is necessary. All that is required is the Snellen Test Type Card and good daylight. In testing the hearing a stop-watch is desirable because the answers of children are often very deceptive. Each eye and each ear must be tested separately. It is well to test the color sense while testing the eyes, and for this purpose colored discs or yarns may be employed. Experience is required in testing the eyes of children because they often transpose, misread, or omit letters. Many children find some difficulty in reading the 20|20 line, and for practical purposes I believe that the ability to read the 20|30 (oculists' opinions to the contrary notwithstanding) should be considered satisfactory unless other signs of eye trouble are present.

The ordinary star shaped astigmatism test-card is valuable in routine eye tests. Special care should be directed to the *squint or "cross eye."* Very few people understand that the squint or cross eye nearly always becomes *blind* unless it receives early care. It is important for parents to know that cross eye can very often be corrected by the early use of proper glasses.

The "near point" of reading must be observed. In children over ten years of age it is about four inches. Inability to read at this distance suggests hyperopia.

The importance of seeing that parents take their children to *oculists* and not to opticians can not be over-stated. Many parents of school children patronize the "doctor" in the rear of a jewelry store unless they are carefuly instructed to the contrary.

The importance of observing crooked and prominent teeth must not be overlooked. This condition as is well known to careful examiners, is usually due to *adenoids*. Adenoids can indeed usually be diagnosed by the facial expression, the appearance of the teeth, and the *high* arch of the hard palate. An examination with the finger is rarely advisable or necessary. The relation between deafness, earache, discharging ear, and enlarged tonsils on the one hand, and adenoids on the other must always be kept in mind.

Rather large tonsils are common in young children even when no diseased condition is present, and, as is well known, this condition tends to disappear of itself. Unless the enlargement is excessive I do not believe that such tonsils always indicate the necessity for medical or surgical treatment. It is often a part of a general lymphatic enlargement.

An ordinary nasal speculum used without special artificial means of illumination is all that is necessary in routine work on the nose. Even the speculum may usually be dispensed with. Polypi are very easily diagnosed from symptoms of obstruction and nose bleed. Enlarged turbinates in school children are in my experience rare.

The examination of the *heart* is very important. With a Bowles Stethoscope or a phonendoscope, the necessity for the removal of the clothing is avoided. A skilful examiner can always detect murmurs in this way. When they are discovered a more complete examination with the chest bared can be made to determine the presence or absence of *hypertrophy* or *dilitation*. Murmurs on the left side in the second interspace are so commonly found as to be negligible. They are practically always accidental or functional. A certain amount of enlargement of the heart during the rapidly growing age, especially near the age of puberty, we all know to be common and of no great consequence. In this condition, however, boys and girls ought to be cautioned about athletic strains or excessive exercise of any sort.

Functionally weak hearts among children are often encountered, and appropriate advice ought to be given in these cases. Such hearts are found more especially among girls of the high school age. Students of this age also need careful examinations for incipient tuberculosis. Unless there are special indications for it, a careful examination of the lungs is rarely necessary in grammar grade pupils. Such examinations are indeed quite impossible unless the clothing be removed, which is not often advisable. An important matter of technique, however, is a rough test of the ability to expand the lungs and chest. It is truly astonishing how few pupils know how to breathe properly. This they must be taught.

More important perhaps than all else is a careful ex-

amination of the teeth. The neglect of the first teeth is practically universal, and even the second teeth need attention in probably sixty per cent of the children of most schools.

As a matter of routine, an examination of the lymph glands of the neck is important. Enlarged glands are often associated with bad teeth, tubercular conditions, and general mal-nutrition. It is my observation that really healthy children rarely show even moderate enlargement of these glands.

Rough tests of muscular control, co-ordination, etc., may always be made quickly and easily. Incipient chorea (St. Vitus Dance) will often be noticed in this way. Sex examinations, however desirable they may be, are not to be recommended at present except with the consent and presence of the parent, and at his request.

Lastly the general posture, state of nutrition, color, and cleanliness, of these little folks must be taken in at a glance by the examiner.

After completing the cards from a given room, the physician visits the room himself and observes the pupils at work. He will probably detect some cases which the teacher has overlooked. He will also observe the conditions of temperature, light and the general sanitary surroundings of the pupils. By this plan of office examination and personal inspection, the physician gradually covers every room in the building. It is needless to say that tact and understanding of children are most essential in this work.

CHAPTER XV.

THE CO-OPERATION OF SCHOOL HEALTH DEPARTMENTS WITH OTHER HEALTH AGENCIES.[1]

Medical supervision of schools is rapidly becoming an increasingly important factor in modern education. The necessity for such careful supervision of the health and development of school children is no longer an open question.

Only the most unprogressive communities now oppose this sort of work, and only *careless* communites fail to avail themselves of its advantages. No school can today claim an important place in modern educational progress which ignores or neglects the health conditions of its pupils. Like most other new developments, school health supervision methods have evolved from very small, unorganized beginnings. As in most other projects, one community learns very little from others, but each attempts to work out its own problems, thereby falling into the same errors, confronting the same difficulties, and wasting about the same amount of energy. We have today no *standardization of methods,* and endless useless discussion results from this fact. In the light of the experience of many progressive cities such standardization in essential matters might now be rather easily estab-

[1]A paper read by the Author at the St. Louis meeting of the American Academy of Medicine, 1910.

lished, thus saving an enormous amount of time and energy to towns and cities which wish to inaugurate this work.

Most communities have in existence one or several sorts of health organizations but few of them have attempted to *correlate* the work of the various health agencies. A concrete example of what may be accomplished by such useful correlation is furnished by the city of Berkeley, California, and for this reason this is presented as typical of what may be done in many other places.

Berkeley is a city of about forty thousand people. It is a suburb of San Francisco and is the seat of the University of California. Health supervision was only organized here recently and the usual difficulties have had to be met. A reasonably expert Board of Health was of course in existence and it employs a Health Officer who devotes part of his time to the city work, receiving for this service the moderate compensation of about a thousand dollars a year.

Since the great San Francisco fire of 1906 a small medical clinic or dispensary has been in operation under the direction of three physicians. For several years the Berkeley Charity Organization has also been in operation, under a Board of Directors which employs a Secretary and visiting nurse. The medical dispensary was situated on the west side of the city near the manufacturing district and consequently among the homes of the foreign element. The Charity Organization was situated near the business center.

The Medical Director of Schools was elected by the Board of Education at a reasonable salary to devote the entire school day (from 9 a. m. to 3 p. m.) to the health work of the schools, and was given a suite of offices in connection with the rooms of the Board of Education. An arrangement was made whereby the Charity Organization Nurse should devote one half of her time to that agency and one half to the city schools.

It soon became clear that the four health agencies in Berkeley, viz. the City Board of Health, the Berkeley Charity Organization, the West Berkeley Clinic, and the School Health Department were wasting considerable time, energy and money. To correct this condition the following plan was carried into effect.

1st. The rather inadequate Clinic was, after much discussion, and with some difficulty, re-organized into a dispensary with a staff made up of fifteen representative physicians, instead of the former small and somewhat exclusive staff of only three.

2d. The Charity Organization was induced to join hands with the new Berkeley Dispensary. To this end a large dwelling house near to both the school and city health departments was rented, and these two rival health organizations established under one roof, thus saving much money in rent, much time and energy, and resulting in common rather than separate efforts toward raising means for support.

3d. The Alameda County Dental Society now organized two Dental Dispensaries, one for Oakland and another for Berkeley. By means of a theatre party and through private contributions of the dentists them-

selves sufficient means were secured to completely equip in the most modern fashion these two dental dispensaries. The Board of Education at once offered co-operation with the Berkeley Dental Dispensary by placing at its disposal offices in connection with those of the Medical Director of Schools.

4th. The City Health Department has closely associated itself with all of the above health agencies and is co-operating in every possible manner.

The result of the combination thus described is that all of the health agencies, including: The School Health Department, The City Health Department, The Charity Organization, The Medical Dispensary and The Dental Dispensary are now located within one block of one another and are combined under three roofs instead of five.

A city Charity Commission has recently been appointed by the Mayor and is closely associated with the agencies just named. The local Chapter of the Red Cross has united its efforts with the others. Within a few months Berkeley therefore has succeeded in uniting toward one common end the efforts of the following health agencies:

1. The School Health Department.
2. The City Health Department.
3. The Charity Organization.
4. The Medical Dispensary.
5. The Dental Dispensary.
6. The City Charity Commission.
7. The Red Cross.

What has been done on a small scale in Berkeley,

the State Board of Health and State Medical Society have done on a much larger one. The "California Public Health League" has been formed, and this will as far as possible unite the efforts of every organized health agency in the State, including "The Society for the Prevention of Syphilis and Gonorrhœa."

The School Health Department in Berkeley feels that its efficiency has been increased many fold through the co-operation just described. It has devised a system of records which is simple, yet complete. Every school case cared for by any one of the health agencies is reported by card to the office of the Medical Director of Schools. The school nurse keeps an accurate card record of every school home visited. No case is entitled to medical or dental treatment which is not first recommended by the Charity Organization. An advisory Health Committee of fifteen physicians has been appointed by the Board of Education to aid the school physician in his work. A lecture Staff of six physicians, dentists and nurses has been organized to give lectures on various health topics at three different centers for the benefit of parents and school children. A woman physician has been added to the Health Department of Schools who teaches Hygiene in the High School and has general supervision of the health of the High School girls. What has been rather easily accomplished in Berkeley by the School Health Department and other health agencies in less than a year can be done in almost any other city with the expenditure of a little time, thought and energy.

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